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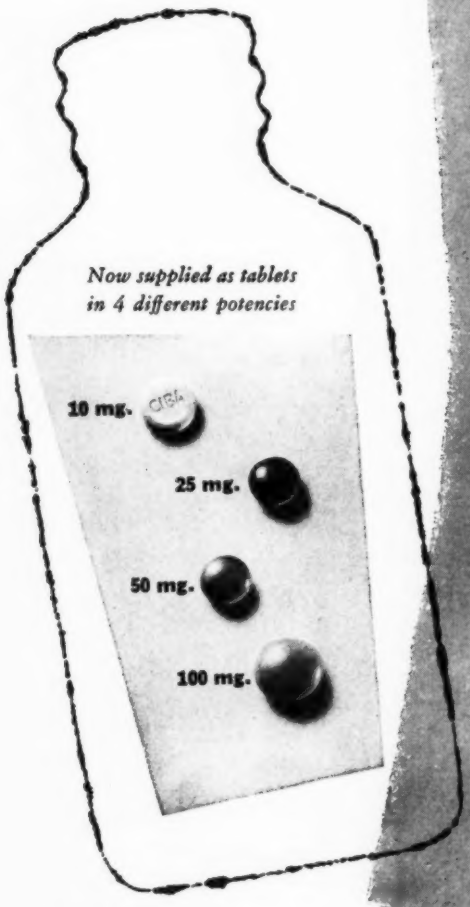

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Poisoning Due To The Anticholinesterase

BY

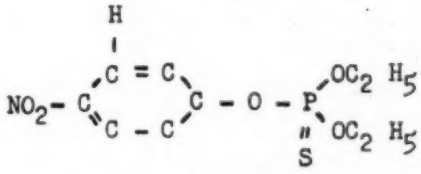
VINCE MOSELEY, M. D. AND H. P. SNEAD, M. D.*

Charleston, S. C.

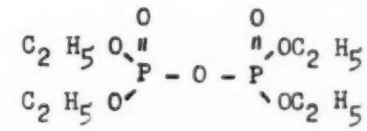
During World War II German chemists, in perfecting "war gases," synthesized a number of esters of phosphoric acid which, later on, were found to be very effective when employed as insecticides. Further work with these compounds led to the synthesis of TEPP (tetraethyl Pyrophosphate) and Parathion (P-Nitrophenyl Diethyl thionophosphate) which, although very effective against insects, are quite toxic to man. The chemical structures of the two compounds are represented in Table I. The most acceptable explanation of the chemical action of these phosphate ester compounds is a cleavage of the phosphate ester link resulting in a highly reactive fission product which combines with the active center of the cholinesterases thus irreversibly destroying their catalytic properties.[1,2,3,4] Although the basic action of parathion and tetraethyl pyrophosphate is the same, namely, irreversible combination with plasma, red blood cell, brain and muscle cholinesterases; thus, permitting the accumulation of large amounts of acetyl choline, there are some differences which should be noted. Tetraethyl pyrophosphate has greater anticholinesterase activity and a more rapid rate of cholinesterase inactivation than has parathion. It also is more soluble in water than fats while the reverse is true for parathion.[5,7] From these chemical properties it would be logical to assume that symptoms would appear more rapidly after exposure to tetraethyl pyrophosphate than to parathion and that parathion would produce more central nervous system symptoms than tetraethyl pyrophosphate. This assumption would probably be correct if the dose of each compound were small and the same; however, it is impossible to determine the actual dosage victims receive and usually there is no significant difference in clinical symptomatology between the two.

In recent years these compounds have been widely used especially in the poisoning of cotton, tobacco, fruits and vegetables. During this past summer, (1952) two deaths from insecticide poisoning (newspaper accounts) were reported in the tobacco belt of North and South Carolina. Because of these preventable deaths, we feel that once again, the toxicity to man of these insecticides should be called to the physician's attention. The purpose of this paper is to report three cases of poisoning due to insecticides (tetraethyl pyrophosphate and parathion) which we had the opportunity to treat; discuss the mode of action of these insecticides, the symptoms produced, the immediate and late treatment and then to list the safety recommendations for their use.

TABLE 1
Parathion



Tetraethyl Pyrophosphate



Case #A-5391: a 23-year-old, white male technician at a local chemical company was admitted to Roper Hospital on 10 August 1951 with known exposure to tetra-ethyl-pyrophosphate (TEPP) for the previous ten days. Several days prior to admission he had noted increased lacrimation with associated mild conjunctivitis, rhinorrhea, and a mild cough productive of a small amount of thick, yellow sputum. Twenty-four hours before admission the patient had onset of frontal headache, dizziness, constricted fields of vision with many scotomata, generalized weakness, mild dyspnea, and twitching of the muscles of the left shoulder and arm. He received atropine, grain 1/60 (1 mg.) subcutaneously and all symptoms subsided. The next morning his cough had increased and because of difficulty in bringing up sputum he was admitted to the hospital for observation. The past history was noncontributory.

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The patient was a well developed and nourished, alert, white male, in no acute distress. The only abnormal finding was inspiratory and expiratory wheezes over both lung fields. There were no clinical findings to suggest abnormal activity of the nervous system.

Laboratory Data: a complete blood count and urinalysis were normal.

Course in Hospital: patient received an additional grains 1/60 (1 mgm.) atropine subcutaneously and was given elixir of terpine hydrate for cough. He was observed over a period of twenty-four hours during which time none of the previously described symptoms or new symptoms appeared. His cough subsided and he was discharged from the hospital improved.

Case #A-5384: a 37-year-old white male employed in research division of a local chemical plant was admitted to the Roper Hospital on 10 August 1951 with known exposure to tetra-ethyl-pyrophosphate of one week's duration. After working several days with tetra-ethyl-pyrophosphate (TEPP) he noticed a disturbance of vision and consulted an ophthalmologist During the following four days he developed increased blurring of vision, mild diarrhea, generalized weakness, moderately severe headache, and a nonproductive cough accompanied by slight chest pain. He was seen by the Plant physician and given 4 mg. of atropine orally and admitted to the hospital for observation.

The past history was noncontributory.

Laboratory data: complete blood count and urinalysis were normal.

Physical examination on admission revealed a well developed and nourished, alert, cooperative white male in slight distress. Positive findings were bilaterally constricted pupils which did not react to light and/or accommodation and inspiratory and expiratory wheezes through out both lung fields. There were no other abnormal findings.

Course in the Hospital: the patient was given atropine, grain 1/60 (1 mg.) subcutaneously on admission. After two hours his pupils remained constricted; therefore, atropine, grain 1/60 was repeated. Six hours after admission his pupils were fully dilated and all previously described symptoms had disappeared. He was observed for twenty-four hours, at the end of which time no symptoms had reappeared and he was discharged improved.

Comment: Although these two men wore full protective equipment, observed the safety rules and did not knowingly come in direct contact with TEPP, we feel that their symptoms were undoubtedly due to poisoning with this insecticide. The early recognition of TEPP poisoning and prompt treatment resulted in only minor morbidity.

Case #A-14502: an 18-year-old white, male farmer admitted to the Roper Hospital 6:15 p. m. on 21 June 1952, in a semicomatose state. History from his father revealed that the patient had poisoned tobacco with parathion that morning from 8:00 a. m. to 12:00 Noon. After finishing his work he came home, took a bath, ate dinner and went down to a crossroads store. While there, about 1:00 p. m., he began feeling bad and came home complaining of muscle cramping, nausea, sweating, cough and a feeling of tightness in his chest. He lay down on the bed and broke out in a profuse sweat. His father noticed that the patient's muscles were "drawing" and "twitching." Shortly afterwards he became irrational and was taken to his family physician who made the diagnosis of parathion poisoning. He was given atropine, grain 1/60, subcutaneously, put in an ambulance and sent approximately 100 miles to the Roper Hospital. En route the patient became apneic on two occasions necessitating artificial respiration for resumption of breathing. He was also given additional atropine, grain 1/60, subcutaneously and apparently continued to breathe satisfactorily during the remainder of his journey.

Further questioning of the father revealed that the patient had poisoned tobacco with parathion for a period of about four hours two weeks previously. His only protection against parathion on both occasions was a handkerchief tied over his nose. The past history was otherwise noncontributory.

Physical Examination: Temperature 98.6° F. Pulse 60 Respiration 30 Blood pressure 120/80. General appearance: well developed and nourished semicomatose white male, in acute distress.

Skin—Moderate sweating; Head—Normal; Eyes—pupils pinpoint bilaterally, did not react to light. Sclerae, cornae and conjunctiva normal; Ears—normal; Nose—normal; Pharynx—moderate amount of mucous; Lymph nodes—normal; Neck—Normal; Chest—symmetrical but decreased expansion; Lungs—shallow respirations, but fair air exchange was present over both lung fields, percussion was normal but there were scattered rales and bronchial wheezing throughout both lungs. Heart—normal; Abdomen—Normal; Rectal—normal, no evidence of fecal incontinence; Genito-Urinary System—normal, no evidence of urinary incontinence; Neurological — generalized muscle fasciculations—most marked in the extremities, reflexes normal.

Laboratory Data: Complete blood count and urinalysis were normal. Twenty-four hour urine specimen for arsenic was negative.

On admission the patient was in a semicomatose state, sweating moderately and breathing lightly with evidence of mucous obstruction to his airway. Immediate aspiration of the pharynx and trachea yielded approximately ten cubic centimeters of thick mucus. Aspirations were repeated as necessary until he was fully conscious. Atropine was administered immediately; oxygen per nasal catheter was begun and a mechanical respiratory was made available.

The course in the hospital during the first seventy-two hours is represented in tabular form (See Table II). The time of recorded observations has been

TABLE 2

Atropine (Grains)	Pupils	Mucous in Respiratory Tree	Skin Flush	Muscle Fasciculating	Respiration	Blood Pressure	Pulse	Sensorium	Fluid Intake and Output Sedation
6:20 1/50 Subc.	o	4+	0	4+	Shallow	120/80	70	Stuporous	
6:40 1/100 Subc.	o	4+	0	4+	Shallow	110/70	74	Stuporous	
7:00 1/100 I. V. and Subc.	o	3+	0	3+	Shallow			Stuporous	1000 c. c. Dextrose (5%) in Saline
7:15 1/100 I. V. and Subc.	o	2+	0	2+	Shallow	80/68	70	Stuporous	
7:25 1/50 I. V.	o-O-o	2+	0	+	Shallow	90/80	70	Stuporous	
7:45 1/100 I. V. and Subc.	o-O-o	+	0	+	Shallow	100/70	70	Stuporous	
8:00 1/100 I. V. and Subc.	o-O-o	+	0	+	Shallow			Stuporous	
8:15 1/100 I. V. and Subc.	o-O-o	+	0	+	Shallow	100/70		Stuporous	1000 c. c. of 5% Dextrose in D/W Urine—500 c. c.
8:30 1/50 I. V. and Subc.	o-O	0	0	0 ceased 8:30	Shallow	100/70		Stuporous Quite restless	Sod. Pentobarb 2½ gr.
9:20 1/50 I. V. and Subc.	o-O	0	2+	0	More Depth	94/68	74	Quite restless	
9:35 1/50 I. V. and Subc.	o-O	0	3+	0	More Depth	100/70	74	Quite restless	
10:05					More Depth			Very Restless	Sod. Pentobarb 2½ gr.
10:30 1/50 I. V. and Subc.	o-O	0	3+	0	More Depth	116/78	88	Stuporous Quiet	
11:50	O	0	3+	0	More Depth	115/76	100	Stuporous Mod. Restless	2000 c. c. 5% Dextrose in Saline. Sod. Pent. 2½ gr.
2nd Day, A. M. 7:05 1/50 I. V.	o-O	0	2+	0	More Depth	120/80	80	Stup. Quiet	2000 c. c. 5% Dextrose in D/W Urine—1250 c. c.
8:25 1/100 I. V. and Subc.	o-O	0	2+	0	More Depth	118/80	80	Stup. Quiet	
					More Depth	102/80	94	Stup. Quiet	
10:20 1/100 Subc.	o-O	0	2+	0	More Depth	104/70	90	Stup. Quiet	
10:35 1/100 Subc.	o-O	o	+	0	More Depth	110/80	96	Stup. Quiet	
12:15 1/100 Subc.	o-O	0	+	0	More Depth	120/80	80	Sl. more response	
3:40	O			0	More Depth	120/80	80	Sl. more response	
4:00 1/100 Subc.	o-O	0	+	0	More Depth	120/80	80	Restless	Sod. Pentobarb 2½ gr.
9:15	O	0	+	0	More Depth	140/100	80	Sl. more response	1000 c. c. 5% Dextrose
3rd Day, A. M.									Urine—1100 c. c.
1:20 1/100 Subc.	o-O	0	+	0	More Depth	170/80	80	Sl. more response	
3:50	O	0	+	0	More Depth		80	More responsive	
12:00 1/100 Subc.	O	0	+	0	More Depth	170/80	80	Rational, Talking	
5:15 p. m.	O	0	+	0					

Pupil Size Symbols:
o—Constriction
o-O-o—Temporary dilatation after Atropine
o-O—Dilatation after Atropine
O—Normal dilatation

arbitrarily taken as the time of administration of atropine.

From Table II it is immediately apparent that the patient's tolerance to atropine was markedly increased. Through the first two hours and ten minutes he received a total of 14.2 mg. of atropine (including 2 mg. received before admission) without signs or symptoms of toxicity; however, following subsequent administrations, he became quite restless which we attribute to central nervous system stimulation by atropine. In regulating our initial dosages of atropine, we relied in the main upon (1) pupil size and reaction and (2) flushing of the skin. The undesired central nervous system stimulation was controlled with sodium pentobarbital. After regaining consciousness seventy-two hours after admission, he was arbitrarily given 0.4 mg. of atropine every eight hours for forty-eight hours and then 0.4 mg. every twelve hours for seventy-two hours, which was sufficient to keep him well atropinized.

As regards comment on the other observations recorded (Table II), with the exception of blood pressure, all other recorded observations were similar to other cases reported in the literature. In other reported cases, except as a terminal event, the blood pressure rose.[2,4,5,6,7] In this patient the blood pressure fell and returned to normal only after the patient had been adequately atropinized. In previously reported cases a low blood pressure indicated an ominous prognostic sign. We have no explanation for this observation other than a central nervous system depression of blood pressure. It is assumed that excess acetylcholine stimulates both the vaso-constrictor and vaso-dilator centers and the effect on blood pressure is the result of the predominating center.[9,10] It has been shown experimentally by Gesell and Hanson that atropine has a direct central antieserinic (eserine inhibits cholinesterase resulting in excess acetylcholine) effect on the respiratory center which would explain the disappearance of shallow respiration and return to normal respiration in this patient after adequate atropinization.[9] We might postulate the same direct central effect of atropine on the vasomotor center with the resultant return of blood pressure to normal either from a hypotensive level, as in our case, or from a hypertensive level, as is reported in other cases in the literature.

It has further been shown experimentally that in dogs and cats, the sympathetic dilator fibres to muscle arterioles are cholinergic. Whether this is true in man is still a disputed question, but if this patient did have cholinergic vaso-dilator fibers to his muscle arterioles, then the blocking action of atropine locally could explain the rise in blood pressure to a normal level.[9,10]

We do not think that the slight bradycardia (70 beats/minute) decreased cardiac output sufficiently to account for the drop in blood pressure.

As a concluding statement regarding blood pressure, we cannot say exactly where or how atropine acts, but clinically it did in this patient cause a return of blood pressure to normal levels after adequate dosage.

The change in sensorium from stuporous to full consciousness was, to say the least, dramatic. Although during the second thirty-six hours of his hospital course, it is recorded that the patient was slightly more responsive, the change was certainly not marked until seventy-two hours after admission when he suddenly awoke, as if from normal sleep and began talking rationally. Again, we have no adequate explanation for this observation other than central nervous system depression by parathion with subsequent resynthesis of cholinesterase above the critical level.

The patient's rectal temperature was normal on admission but several hours later spiked to 101° F. It ranged from 101° F. to 102° F. for the following seventy-two hours, after which it returned to normal for the remainder of his hospital stay.

He was given "combiotic" (0.5 gm. dihydrosteptomycin and 400,000 units procaine penicillin) every twelve hours prophylactically for the first six days of his hospital admission in order to guard against pulmonary infection.

After regaining consciousness, the patient's hospital course was uneventful. He had no residual changes, no recurrence of previous symptoms and developed no new symptoms during the following five days of observation.

DISCUSSION

The mechanism of action of parathion and tetraethyl pyrophosphate is by irreversible combination with cholinesterase in all tissues of the body resulting in an excess of acetycholine, the resultant symptomatology depending quantitatively upon the amount of cholinesterase inhibited. The rate of restoration of cholinesterase activity to normal levels is very slow progressing at the rate of one to three per cent daily, thus, frequent repeated exposures to small amounts can result in marked toxic symptoms when the cholinesterase activity reaches the critical level.[1,2,3,4,8] These insecticides may be absorbed through the skin without producing a local reaction, the user being unaware of contact until symptoms begin. They may also be absorbed through the respiratory tract, conjunctiva, gastrointestinal tract, or following injection. The time interval between exposure and onset of toxic symptoms depends upon the degree and frequency of exposures and degree of absorption. In our cases this time interval varied from several hours to twenty-four hours following the last exposure.

The signs and symptoms of anticholinesterase insecticide poisoning may be divided into muscarine-like, nicotine-like, and central nervous system effects.[2,4,5,9]

Muscarenic: The most frequently noted initial symptoms are anorexia and nausea, followed closely by abdominal cramps, vomiting, increased sweating, in-

creased salivation and blurring of vision. If the degree of absorption of the insecticide is marked, the above symptoms are followed by diarrhea, involuntary urination and defecation, bronchospasm associated with excessive secretion of mucous in the bronchial tree which may lead to pulmonary edema and cyanosis. The pupils become pinpoint and nonreactive early following the initial symptoms. The blood pressure is usually moderately elevated but may be normal or below normal as was observed in one of our cases. In other cases reported in the literature, hypotension was observed usually only as a terminal event; therefore, a fall in blood pressure is a very poor prognostic sign and demands immediate and maximal treatment.

Nicotine-like: The earliest nicotine-like sign is muscular fasciculations most noticeable in the eye lids, tongue, and extremities. In the sequence of symptoms muscular fasciculations usually appear after nausea and vomiting. Generalized muscle cramping is a not uncommon symptom.

Central Nervous System: These symptoms usually appear after nausea and vomiting and occur in the following order: anxiety, restlessness, giddiness, headache, ataxia, slurred speech, drowsiness, confusion, coma, loss of all reflexes, convulsions, hyperpyrexia, and death. Of course, the continued developing of the above symptoms depends upon the amount of anticholinesterase insecticide absorbed and the degree of combination with cholinesterase.

Laboratory Data: With the exception of a slight to moderate leukocytosis and a decrease in cholinsterase activity, all of the usual laboratory procedures are within normal limits.

The treatment is both specific and symptomatic, the former being atropine which moderately inhibits the muscarenic effect and to a less extent the central nervous system effects of the insecticide. We would like to emphasize the fact that the dosage must be individualized for each patient according to the severity of the poisoning, and that he must be followed very closely regulating the dosage of atropine according to the clinical signs and symptoms until adequate atropinization is obtained and maintained. The tolerance to atropine is increased, the extent of which varies from patient to patient, but appears roughly to parallel the severity of the poisoning.

Symptomatic treatment consists of removing any unabsorbed insecticide such as washing the skin, gastric lavage, etc., parenteral fluids and oxygen if needed, the use of a mechanical respirator if the muscles of respiration become weak, tracheotomy or tracheal intubation if laryngospasm occurs, and the use of small doses of barbiturates to control restlessness, convulsions, central nervous system stimulation due to atropine. Curare abolishes the muscular fasciculations, but it also produces weakness of the muscles of respiration. Because of this latter effect, we believe curare is contraindicated. Morphine is definitely contraindicated because its action is potentiated by the anticholinesterase insecticides. In semicomatose and comatose patients, the administration of an antibiotic is probably advisable because of the likelihood of developing pneumonia and of urinary tract infection if catheterization is necessary.

After the acute phase is over, treatment consists of prevention of further exposure to the anticholinesterase agents, and the maintenance of general body health.

Safety recommendations for workers applying parathion are as follows:

1. Wear full protective equipment at all times. This includes natural rubber gloves, rubber workshoes or overshoes, a latex rubber apron, respirator or mask approved for toxic dusts and organic vapors, and goggles to protect the eyes.
2. To avoid absorption through the skin, avoid contact with both liquid and dusts, change to freshly laundered clothes daily, changing coveralls, underwear, shirt and socks. Shower off with plenty of soap and water immediately after work. If the insecticide contacts the skin during working time stop work at once, wash thoroughly and change to other clothes.
3. To avoid absorption through the gastrointestinal tract, do not eat, smoke, or drink in sprayed areas. After handling anticholinesterase insecticides, do not eat, smoke or drink without a thorough washing with soap and water and a complete change of clothing.
4. To avoid absorption through the respiratory tract wear an approved mask or respirator and goggles.
5. If the anticholinesterase insecticide spills, remove to a disposal area and burn or bury. Wash the area with soda ash and soap and flush thoroughly.
6. Workers coming in known contact with an antiCHE insecticide should be observed for a period of at least eight hours and treated as previously described according to their signs and symptoms.

SUMMARY

1. Three cases of anticholinesterase insecticide poisoning are reported; two mild and one severe, with their treatment given in detail.

2. A brief discussion of the toxic actions of anticholinesterase insecticides with their associated signs and symptoms is presented. Because of the slow rate of resyntheses of cholinesterase, the danger of additive toxic effect from repeated exposures to small amounts of these insecticides is stressed.

3. Treatment, both specific and symptomatic, is discussed and the safety recommendations for workers handling the anticholinesterase insecticides are listed.

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Cretinism and Childhood Myxedema*

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The disorders of the various endocrine glands and allied metabolic disorders which fall within the realm of Endocrinology may, at times, produce some of the most striking and bizarre clinical conditions that we, as doctors, are given to cope with. All too often our studies of such cases enable us only to derive the rather sterile satisfaction of having made the correct diagnosis of an uncommon clinical condition. With our present imperfect knowledge, we are able only to observe what is taking place. Lacking knowledge of why such a conditoin came about in the first place, we are left without any rational approach to therapy and, more important, can do nothing to prevent such cases in the future.

The subject of cretinism which I would like to discuss today is an example of one of these bizarre conditions, and the case I will present typifies some of the points I would like to emphasize in my discussion.

Case Report:—J. N., a twenty-year-old white female, was first seen by Dr. Freeman of this city because of the development of a painful nodule on the left knee. Dr. Freeman recognized this case as being one of untreated cretinism and referred her to me for a diagnostic survey and treatment. The history obtained from the mother was that the child had been a full-term spontaneous delivery. The patient was noted to be large at birth, weighing over ten pounds, but the exact weight was not recalled. An enlarged tongue had been noted since birth. The patient nursed fairly well, gained adequately, but was apathetic and exhibited little spontaneous activity. Around the age of one year, the mother was not satisfied with the statement of her local physician that the child was normal and brought the patient to a pediatrician here in Columbia. This physician correctly diagnosed the case as one of congenital thyroid deficiency and gave the mother instructions to give the patient thyroid. As far as I can ascertain, therapy was small in amount and not given too regularly. Treatment in this manner was continued for four years but then stopped on the advice of this same pediatrician and the mother was told that nothing could be done for the patient. The patient had first sat alone at the age of two years, pulled herself up in the crib at three years, and shortly thereafter began to take steps and could walk fairly well by the age of four. The first tooth erupted at the age of two years, a complete set had never finished erupting, no teeth have been shed, and those present have been decayed for a number of years. The patient's bowels had never moved normally and for the last number of years would move only following the administration of a laxative. The patient first talked coherently around the age of five years but had never spontaneously spoken much. The urinary output had always been small, but no other urinary abnormalities had been noted. The mother had noted that the patient had always objected to bright lights as they seemed to hurt her eyes. Breast development was first noted around the age of sixteen and menarche occurred at the age of eighteen. Menses occur every twenty-eight days, last five days with a scanty flow. The patient still enjoyed playing with dolls, was content to sit for hours at a time doing nothing, and practically never exhibited emotion in any form. During the patient's entire life, her diet has seemingly been adequate as regards sufficient proteins, etc. She received cod liver oil and orange juice during infancy. The patient had shown no increase in stature nor in

*(Presented at Annual Meeting of South Carolina Medical Association, May 6, 1953)

weight since thyroid medication was stopped at the age of five.

The patient's mother had previously given birth to six normal children who have grown and developed normally. She then had a stillbirth, but no pertinent facts about this event were remembered, she had then given birth to the patient. The mother has not been pregnant since. There was no history of goiter in the mother nor in any of the patient's family in direct ascendancy for three generations. The patient's mother had always lived in South Carolina as had the patient. No other cretins were known of in either the Mother's or the Father's side of the family. The mother had never taken treatment in any form for thyroid disease. There was no history of any other endocrine disease in the patient's family.

Physical examination at the time of the first visit, November 11, 1952, revealed the temperature to be 98°, pulse 64, respirations 6/minute, blood pressure 90/45, weight 47 pounds, height 41 inches, and span 39 inches. In general, the patient presented the classical cretinous appearance, short, dumpy, pot-bellied, an inane smile, thick lips, protruding tongue, and genu valgum. She was cooperative and apathetic, but cried in a husky, slow-motion manner when having a venipuncture. The skin was sallow, thin and dry; in places almost parchment like while in others somewhat thickened by seborrheic scales. The scalp hair was sparse over the crown where there were seborrheic crusts. The body hair was quite sparse, very scant axillary hair, and only a tuft of pubic hair. Supraclavicular fat pads were prominent but no other abnormal collections of fat were seen. The eyelids were dry and puffy with lacrimal concretions in the outer canthi. The pupils were round, regular and equal, reacted sluggishly to light, the fundi were poorly seen but there were no gross abnormalities. The ears were normal, the nose was saddle-shaped but otherwise normal. The tongue was two to three times enlarged with a normal coat. There were many decayed deciduous teeth. The neck was short, supple, the trachea was in the midline, and no thyroid gland could be felt in any location. The lungs were clear to percussion and auscultation. The heart was not enlarged, there were no murmurs, and the rhythm was regular. The abdomen was protuberant, relaxed with a marked diastasis recti. There were no organs or masses felt. The labia minora were thickened and plaque-like, the clitoris could not be identified. Rectal examination was normal, no pelvic organs could be felt. All of the muscles were poorly developed and exhibited poor tone with an increased range of motion in all joints. The hands and feet appeared slightly larger than normal for her stature. The gait was waddling, weak and unsteady. The superficial reflexes were absent, the deep reflexes were present and equal but extraordinarily slow and vermicular in character.

Fluoroscopic examination of the chest revealed the heart to be slightly enlarged in all dimensions but was otherwise normal. A large collection of gas was seen in what was probably a dilated colon.

Complete urinalysis was normal, RBC 3.2 mil., Hb. 9 gms. WBC 8,200 with a normal differential, VPC 29 vols. per cent, serum cholesterol 386.4 mgms. per cent, serum calcium 12 mgms. per cent, serum phosphorus 4.3 mgms. per cent, and alkaline phosphatase 2.2 units.

The patient was begun on therapy with 1/10 of a grain of thyroid daily with gradual increase to the present level of 1 gr/day. Since the beginning of therapy, the patient has shown improvement, some functions have returned to normal, some are improving, and some are unchanged. The patient's bowels began moving without laxatives a week or so after beginning treatment and her appetite became much greater at about the same time. Her interest in her surroundings has noticeably increased, she sleeps only 8-10 hours a day whereas previously she would sleep for 12-14 hours, she is more playful, and has recently begun to have temper tantrums with which the mother is finding it difficult to cope. Her height and weight have shown a steady increase and she now weighs 52 pounds, her height is 44 inches, and her span is 42½ inches. About one month after beginning therapy, neurological examination revealed that the superficial reflexes were still absent but the deep reflexes were quite brisk. She walks more steadily now and her gait has improved slightly. The seborrheic scales have disappeared, the scalp hair is more profuse and more normal in appearance, her menses have continued and have been somewhat more profuse but still scanty. The hemoglobin has risen to 11 gms. with a commensurate rise of the RBCs. Her blood cholesterol was repeated one week ago and was 168 mgms. per cent. Her speech, however, has not improved though the patient quite evidently makes much more of an effort to talk than previously and what speech there is, is now spontaneous.

Discussion: The term cretinism as used, at present, embraces what are two etiologically distinct conditions, and the term should be restricted to those which are seen to occur in geographic regions where because of iodine deficiency or the presence of poorly defined goitrogenic substances colloid goitres are extremely prevalent. Such a case is usually born to a goitrous mother and a goitrous father with the presence of goitres in the preceding two, three or more generations. The incidence of goitre in such endemic cretins has been reported to vary from 50-90 per cent. Furthermore, such cases respond poorly if at all to thyroid hormone therapy and most of the writers on this subject feel that more than thyroid deficiency is operative in the production of such cases.[1, 2, 8]

If it is agreed that the term cretinism should be restricted to cases of what is now called endemic cretinism, what term should be used to describe the dissimilar condition that develops in children of non-goitrous families and living in non-goitrous geographic locations. The term myxedema is well accepted in

cases where severe hypothyroidism develops in adults. In children, the etiology of this peculiar condition is likewise thought to be due to severe thyroid hormone deficiency and the term childhood myxedema has been proposed.[8] I believe this to be a much more descriptive term than sporadic cretinism as this condition is much more comparable to the situation present in adult hypothyroid cases than it is to the endemic cretin. Childhood myxedema may be congenital or acquired. If congenital, it is due to partial or complete aplasia of the thyroid. If acquired, it may be post-infectious, post-traumatic, rarely post-operative, and spontaneous or idiopathic.

The primary action of thyroid hormone seems to be that of regulating the speed at which the various enzymatic processes by which we live operate. It is not felt that thyroid hormone initiates of itself any of these enzymatic reactions. Thus the situation that obtains in the severe hypothyroid child and that of the severe hypothyroid adult are similar in basic nature. The rather marked difference in clinical appearance of the cases is seen to be due to the fact that, whereas in the adult patient we are dealing with a metabolism that is undergoing little if any qualitiative change, in the infant and growing child we are dealing with a metabolism that is constantly changing both qualitatively and quantitatively. Thus, in the child, first one set of enzymatic reactions appears, is dominant or obvious for a time and then either stops completely or regresses to the adult level and then another set comes to the fore. The clinical picture that would result from a lack of the speed-regulating factor of such reactions, thyroid hormone, would then obviously produce changes much more profound in their nature in childhood cases that would the same lack produce in the adult. Furthermore, the clinical result in each particular child would then be seen to be dependent upon two factors—first the age at which the thyroid hormone lack became operative and hence which growth processes had already developed, were developing or had not yet developed and, secondly, upon the severity or completeness of the thyroid hormone deficit. A brief revue of any series of cases of myxedematous children reported in the literature will impress this individual difference from case to case upon the reviewer. [3, 5, 7, 8, 9, 10, 16]

There are, however, certain findings which are common to all cases of childhood myxedema. Awareness of these findings, coupled with the realization that both the severity and the relative importance of any one of them will vary from case to case dependent upon two factors mentioned previously, will aid greatly in prompt diagnosis with the result that treatment will be started at a time when the greatest benefits can be expected. For it is well known that while certain abnormal processes resulting from myxedema in childhood can be reverted to normal almost without regard of how late treatment is started, other abnormalities will became irreversible if much time is lost between the onset of the disease and the beginning of adequate therapy. These common findings are first, lack of or markedly retarded neuromuscular development, second, lack of or markedly retarded skeletal development and dentition, third, a history of chronic constipation, fourth, a history of poor nursing coupled with an exceptionally "good" baby (if the disease develops in infancy) and fifth, the physical findings of dry, scaly skin, sparse and dry body and scalp hair, a phlegmatic disposition with lack of spontaneous emotion.

The most helpful laboratory test is the determination of the blood cholesterol which should be elevated to between 300-400 mgms. per cent, this test is not as valuable in infants as in children. Creatine excretion in the urine has been determined[8] and it has been found that myxedematous children usually excrete less than normal or at times none at all. This test is difficult for many reasons, however, and has not found a wide application. The standards for the BMR of children are inadequate and while this test may be helpful by comparing the changes in the repeated tests of a single case, too much reliance should not be placed upon a single determination. To my knowledge, the use of I-131 tracer tests and determinations of the serum PBI have not been utilized in cases of this nature. If available, they should prove extremely helpful. Skeletal survey with x-rays probably presents one of the most useful adjuncts that can be used for diagnosis. The changes are well known and relatively specific in cases of childhood myxedema. Probably one of the most useful of the x-ray findings is the determination of the presence or absence of the femoral epiphysis in new-born children.[18] This epiphysis should be present in the full-term infant and it's absence is a strong point in favor of the diagnosis of congenital childhood myxedema. This finding is of great help in differentiating congenital childhood myxedema from mongolism.

Mental sluggishness or decreased intelligence is frequently but not always seen in cases of childhood myxedema and, unfortunately, this aspect of the situation seems to be one of the rapidly irreversible changes which myxedema can inflict upon the child.[5]

Treatment of these cases consists of the continuous administration of thyroid hormone at the dose level found to be most effective for each particular patient. This dose should be the one which brings about reversal of the rapidly reversible abnormalities such as the elevated blood cholesterol and the neurovegetative functions without the appearance of symptoms of thyroid toxicity. As with adult myxedema, it is usually best to begin with a small dose, such as 1/16 of a grain once a day with rather rapid increase to the maintenance level. Particularly in those cases which develop after the period of infancy and in whom complete thyroid hormone deprivation is not present, the need for thyroid hormone will vary from time to time and you must be aware of this changing need and

regulate the dose accordingly.

Conclusion: In conclusion, I would like to say that while the results of therapy in most cases of childhood myxedema leaves much to be desired, there are many cases on record of children being brought up from what can only be called a vegetative existence to a condition that, while not completely normal, at least allows them to be useful and productive members of society. It appears that each case is more or less a law unto itself as regards the response to therapy and a hopeless attitude is not warranted until adequate and vigorous therapy for a sufficiently prolonged period of time has been carried out.

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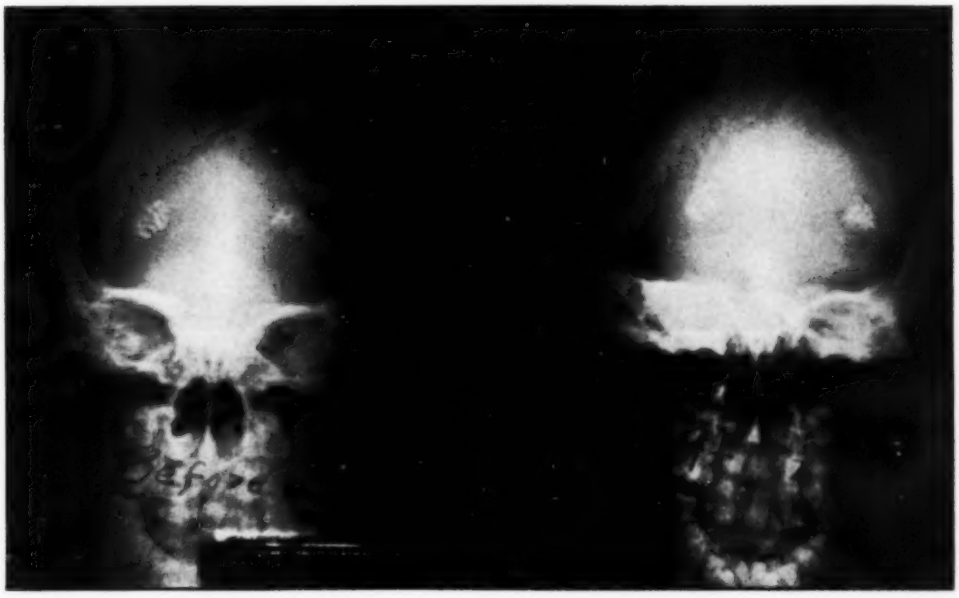

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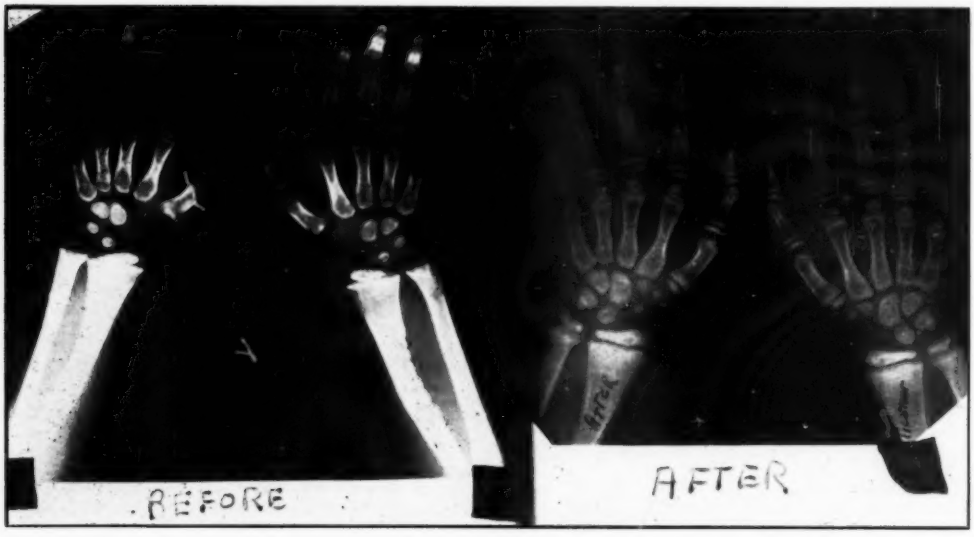

BEFORE AFTER

BEFORE AFTER

The above x-rays demonstrate the rapid changes which occurred in the skeleton of the patient reported. The first films (those marked "before") were taken prior to the institution of treatment, and those marked "after" were taken following four and one-half months of treatment. The calcification of the choroid plexuses is quite striking and to the author's knowledge has not previously been reported as occurring with cretinism.

Prevention of Rheumatic Fever

(The following statement was prepared by the Council on Rheumatic Fever and Congenital Heart Disease of the American Heart Association. Authoritative and concise, it should prove of real aid to the practicing physician as he deals with the problem of rheumatic fever in his practice. Twenty-five years ago we were told that rheumatic fever was practically nonexistent in South Carolina. We have become convinced that rheumatic fever existed then as it does today—physicians were failing to diagnose it in its early stages. We have now reached the era when it is not sufficient to diagnose the condition—we must endeavor to prevent its occurence or recurrence. Toward this end we publish this article. Editor).

Rheumatic Fever is a recurrent disease which can be prevented. It is now generally agreed that both the initial and recurrent attacks of the disease are usually precipitated by infections with beta hemolytic streptococci. Therefore, the prevention of rheumatic fever and rheumatic heart disease depends upon the control of streptococcal illnesses. This may be successfully accomplished by (1) early and adequate treatment of streptococcal infections in all individuals and (2) prevention of streptococcal infections in rheumatic subjects.

I. *Treatment of Streptococcal Infections*

In the general population at least 3% of untreated streptococcal infections are followed by rheumatic fever. Among certain individuals, especially those with previous rheumatic fever, the incidence is much higher. Adequate and early penicillin treatment, however, will prevent most attacks of rheumatic fever and eliminate streptococci from the throat.

A. *Diagnosis of Streptococcal Infection*

1. Epidemiology: The seasonal pattern and presence of similar cases in the community or household may be helpful. For example, streptococcal infections in the northern United States are most common from January through June. Likewise, a case of scarlet fever in one child would suggest that a sore throat in another has the same etiology.

2. *Symptoms*

a. Sore throat—onset sudden, in the tonsillar area, not in the trachea.
b. Headache—common.
c. Fever—variable—but generally from 101° to 104° F.
d. Abdominal pain—common, especially in children. Not too common in adults, but does occur.
e. Nausea and vomiting—common, especially in children.
f. These symptoms are usually *not* present:
(1) Simple coryza
(2) Cough
(3) Hoarseness

3. *Signs*

a. Red throat—frequently beefy red, but if seen early the redness may be mild.
b. Exudate—usually present.
c. Glands—swollen, tender tonsillar glands at angle of jaw.
d. Rash—scarlatiniform (characteristic of scarlet fever—not common).
e. Discharge—otitis media and sinusitis indicated by (serous or purulent) aural or nasal discharge are frequent complications or streptococcus pharyngitis.

4. *Laboratory*

a. White blood count—generally over 12,000 and in children frequently over 20,000.
b. Throat culture — positive for hemolytic streptococci.

5. *Therapeutic Response*

Almost without exception patients with streptococcal infections are vastly improved within 24 hours after penicillin has been started and the temperature normal, or nearly so.

This therapeutic response is characteristic and if it does not occur, the chances are much against the disease being due to hemolytic streptococci.

B. *Treatment of Streptococcal Infections*

In order to be effective, treatment should be started immediately when a streptococcal infection is suspected and continued for sufficient time to eradicate the streptococci from the throat.

Penicillin is the drug of choice for treating streptococcal infections.

Both the oral and the intramuscular routes of administration have been utilized successfully for penicillin therapy of streptococcal infections. Intramuscular injections have been proved to prevent rheumatic fever. The data on the value of oral penicillin as a preventive is less complete.

Oral administration in contrast to intramuscular administration has these advantages:

(1) It is not as distasteful to many patients.

(2) It requires fewer physician visits.

It has these disadvantages:

(1) Larger amounts of penicillin must be used.

(2) It is difficult to administer to vomiting or refractory children.

(3) In some adults it gives rise to persistent diarrhea and pruritus ani.

(4) It is difficult to be sure that treatment is continued for sufficient time and given in proper relation to meals to be effective.

1. *Recommended Schedules*

a. Intramuscular Penicillin.

(1) Children—one intramuscular injection of 300,000 units of procaine penicillin with aluminum monostearate in oil *every third day for three doses.*

(2) Adults — one intramuscular injection of 600,000 units procaine penicillin in aluminum monostearate *every third day for three doses.*

(Note: Less preferable, but usually effective—two doses as above at three day intervals).

b. Oral Penicillin

(1) First five days: 200,000 to 300,000 units one half to one hour before meals and at bedtime (total of 800,000 to 1.2 million units per day in 4 divided doses. Smaller amount children—larger amount adults).

(2) Second five days: 200,000 to 250,000 units one half to one hour before meals. (total 600,000 to 750,000 units per day in 3 divided doses).

Note: To be effective, therapy should be continued for the entire ten days even though the temperature may return to normal and the patient may feel better within one or two days.

c. Combination of Intramuscular and Oral Penicillin

Therapy may be begun with one injection of penicillin (300,000 units procaine penicillin with aluminum monostearate in oil) and then, beginning three days after the injection, continued for an additional seven days with oral penicillin according to the schedule b (2) outlined above.

d. Other Medication.

1. Aureomycin is less effective than penicillin in controlling streptococcal infection but is especially useful in those sensitive to penicillin.

Dosage: Total 10 mg. per pound of body weight in four divided doses daily for two days. Cut dose in half for remaining eight days of therapy.

2. New preparations of penicillin. These may be effective and even preferable to the treatment schedules outlined, but at present they have not had sufficient trial to warrant their recommendation.

3. Other antibiotics: At present there is inadequate data on their value.

e. Not Recommended for Treatment.

1. Penicillin troches or lozenges.
2. Penicillin followed by sulfonamides.
3. Sulfanomide drugs.

Note: Recurrences of streptococcal infection should be treated as primary attacks.

II. *Prevention of Streptocoocal Infections*

A. General Rules for Prophylaxis

1. *Who should be treated?*

All individuals under the age of eighteen who have had rheumatic fever or chorea and all those over this age who have had an attack within five years.

3. *When should prophylactic treatment be initiated?*

At the end of the second week of the attack of rheumatic fever or any time thereafter when the patient is first seen.* Prior to the start of prophylaxis, beta hemolytic streptococci should be eradicated by proper treatment of the patient.

(see methods of penicillin therapy recommended above.)

3. *How long should prophylaxis be continued?*

In children, at least to the age of eighteen; in all those above this age, for at least five years from their last attack.

4. *Should prophylaxis be continued during the summer?*

Yes.

B. *Prophylactic Methods*

1. *Sulfadiazine*

This drug has the advantage of being easy to administer, inexpensive and effective (other newer sulfonamides are probably equally effective). Although resistant streptococci have appeared during mass prophylaxis in the armed forces, this is rare in civilian populations.

a. Dosage—from 0.5 to 1.0 gm. taken each morning throughout the year. The smaller dose is to be used in children under sixty pounds.

b. *Toxic Reactions*—these are infrequent and are usually minor. However, in any patient being given prophylaxis with sulfonamides consider all rashes and sore throats as possible toxic reactions to the drug, especially if they occur in the first eight weeks of prophylaxis. The chief toxic reactions are:

**Note*

In patients receiving ACTH or Cortisone, be

cautious that other infections are not masked since the prophylactic dose is inadequate to treat such concurrent illnesses as pneumonia or meningitis.

(1) Skin eruptions

(a) Morbilliform—much like measles —continue drug with caution.

(b) Urticarial — best discontinue treatment.

(c) Scarlatiniform—often associated with sore throat and fever. Unsafe to continue drug.

(2) Blood reactions

(a) Leukopenia — Discontinue if white blood count falls below 4,000 and polynuclear neutrophiles below 35% because of possible agranulocytosis which is often associated with sore throat and a rash. Because of these reactions, weekly white blood counts are advisable for the first two months of prophylaxis. (The use of sulfonamides therapeutically for any reason in this period should be preceded by a white blood count). The occurence of agranulocytosis after eight weeks of continuous prophylaxis with sulfonamides is extremely rare.

2. *Penicillin*

Although experience with oral penicillin for the prophylaxis of rheumatic fever is more limited than that with the sulfonamides, the antibiotic promises to be a safe and effective prophylactic agent. Oral penicillin has the desirable characteristics of being bactericidal for hemolytic streptococci and of rarely producing serious toxic reactions. It has the disadvantages of being more costly than sulfadiazine and because of the need of giving it on an empty stomach, of being somewhat more difficult to administer.

Oral penicillin represents an alternative drug for rheumatic fever prophylaxis. It is especially important to use this agent for those who do not tolerate sulfadiazine.

a. *Dosage*

Although other routines of administration may prove satisfactory, the following schedules are suggested:

200,000 to 250,000 units two times daily is recommended. Since penicillin is best absorbed on an empty stomach, the time of administration should be 1/2 to 1 hour before a meal or at bedtime. A single dose of 200,000 to 250,000 units before breakfast is less preferable.

b. *Toxic reactions*

(1) Urticaria

(2) Reactions similar to serum sickness—they include fever and joint pains and may be mistaken for rheumatic fever.

(3) Angioneurotic edema

Although many individuals who have had reactions to penicillin can subsequently take the drug without trouble, it is safer not to use penicillin, if the reaction has been severe and particularly if angioneurotic edema has occurred.

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HISTORICAL SIDELIGHTS

WILLIAM OSLER'S CONTINUING INFLUENCE IN THE FIELD OF MEDICINE

J. HEYWARD GIBBES, M. D.

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On the fly leaf of his biography of William Osler, Dr. Cushing speaks as follows: "To Medical Students: In the hope that something of Osler's spirit may be conveyed to those of a generation that has not known him; and particularly to those in America, lest it be forgotten who it was that made it possible for them to work at the bedside in the wards". .

It is probably safe to say that no man of medicine ever received the wide acclaim that Dr. Osler did in his lifetime. This statement is amply supported by the data contained in Cushing's biography and in the numerous books and essays that have come from other authors. The acme of all of this appeared on his 70th birthday when his contemporaries, friends, associates and former students united in paying tribute to the man whom they loved and admired. Cushing says, "such an outburst of expressions of affection — has rarely been exceeded. The medical journals in the United States, in Great Britain and her dominions, issued special 'Osler Numbers', and from near and far people vied with one another in paying him loving tributes." Among these testimonials was a so-called Memorial Volume which contained articles by 150 of his friends and former pupils. Thus, on his 70th birthday, there was no doubt about a wide appreciation of him and of his vast influence in the medical world. It is interesting to note his manner of receiving all of this adulation. He wrote, "they have been birthdaying me this week in London".

Dr. Osler's 70th birthday fell on July 12th, 1919. His death followed all too hard upon this event. He died on December 29th, 1919. Again, there was a spontaneous burst of tribute to him. The lay press, medical journals and individuals wrote articles and letters reviewing his accomplishments as a student, teacher, investigator, author and organizer in medicine, praising his general way of life, and extolling his virtues as a friend and citizen. So, at the time of his death there was no doubt about William Osler's place in the Medical World. The only question was, how long would his influence be felt?

An impromptu utterance from Dr. L. F. Barker, Osler's successor to the chair of Medicine at Johns Hopkins, upon the cabled notice of his death, said: "The secret of Dr. Osler's success and influence lay in his personality. He was full of the milk of human kindness. He ordered his life so as to have some leisure for friendships, for sociability and for extra-professional relationships. His charm of manner, his unfailing sense of humour, his wide sympathies and his capacity for comradeship made him a delightful companion and a much-loved friend." Dr. Barker doubtless recognized that this eulogy was incomplete, and that a fame as great as Osler's had to be based on more substantial foundation than mere personality, for three months later he published an article in the Canadian Journal of Medicine and Surgery entitled, "Osler at Johns Hopkins", in which he describes the way in which Dr. Osler organized the medical department of the new medical school, the manner of his teaching, the clinical investigations that were conducted by him, the medical articles and addresses that he wrote and delivered, the medical associations that he helped to organize and to foster, the part that he played in encouraging medical libraries, and the interest that he took in public health matters. He quotes a Dr. Ellis, of Elkton, Maryland, as saying, "it is a very strange thing that it is only occasionally that Dr. Osler can find time to come and see a patient with me in consultation when a large fee is involved, but on every occasion when I have asked him to attend an autopsy he has accepted the invitation at once". This article of Dr. Barker's does much to let us see the qualities in Dr. Osler that Cushing thought worthy of influencing young medical men in generations to come, and which he hoped would be the case.

July, 1949 was the centenial of Dr. Osler's birth. He had been dead for thirty years. Medicine and the world in general had been hurrying along. Another World War had been fought, and there was much talk of a third one in the offing, with universal destruction a by-product of it. The atom bomb had been used as the most fear-inspiring and hate-producing instrument of all time. At the international level, political ideologies, masquerading as Democracy, Communism and Socialism, were behaving like snarling dogs—each hoping that they might snarl loudly enough to avoid "hazarding it on a battle". In England and America, the struggle between the haves and the have-nots had brought about a change in social, political and economic structure that seemed to make the quarrelling at international levels a mockery. The United States was still "spending itself rich", The Rooseveltian doctrine of using tax money with which to purchase votes had apparently come to stay. Western Europe was in a state of political chaos, and was being supported economically by largess from the United States. None of this was conducive to thought of a man whose life had been in such contrast to movements of this kind.

Medicine, too, had changed since Dr. Osler's day. It had changed much during his life-time, and it had

been intimated that he had found it difficult to keep abreast of some of its progress. Basic sciences had bulked larger and larger in the clinic, so that physics, chemistry and biology introduced scientific procedures in diagnosis that had been unknown through the major part of Dr. Osler's career. Since his death these changes had been stupendous. Diagnostic acumen leaned more and more heavily upon laboratory procedures, and the balance between diagnosis and treatment had been swung heavily toward the latter by the sulfa drugs and the mould extracts. None of these changes was related to Dr. Osler's influence, and many of them were calculated to make the clinic of his day look archaic, indeed.

So, why should a world like this, both temporal and medical, pause to do honour to a man who would seem so out of place in it at this time? But it did pause to honour him!

The July, 1949 number of the Archives of Internal Medicine was designated as the Sir William Osler Number, and it carried twenty-eight articles, written in the main by former students and associates, describing his characteristics and the influence that he had left behind him. In like manner, a number of the Bulletin of the Johns Hopkins Hospital was dedicated to him. This consisted largely of a review of the diseases that Dr. Osler had shown a special interest in, and pointed out the clinical acumen that he had shown in approaching these matters. Similar recognition was accorded in England and in Canada.

I thought that it might be of interest to take a peep into this man's manner of life, with a brief review of his accomplishments, to see why he received adulation while living and to decide as to whether he is likely to receive veneration in years to come.

One of Dr. Osler's favorite authors, Sir Thomas Browne, expresses the importance of heredity in human affairs by saying, "lift up one hand unto Heaven, that thou wert born of Honest Parents, that Modesty, Humility, Patience and Veracity lay in the same egg, and came into the world with thee". Dr. Osler seems to have been fortunate in having this type of heredity.

His mother was of Celt origin. She was of dark tye, belonging to the so-called "black Celts", with an olive tint to the skin of such degree that, after going to Canada, many thought that she might have Indian blood in her veins. Cushing says that "Ellen Pickton was a very pretty girl, clever, witty and lively, with a power of quick repartee, wilful but good tempered, not easily influenced, very faithful in her friendships, and of strong religious principles". From her Dr. Osler seems to have inherited his complexion and much of his temperament.

The Osler family seems to have been a sturdy stock, established over generations in Cornwall, successful merchants and ship owners, and many of them possessed of adventurous natures. They seem to have been blessed with strong minds and strong bodies. Featherstone Lake Osler, the father, had these qualities well mixed in him. After short service in the British navy he returned to England, took Holy Orders, and, in response to a sense of duty, went to Canada as a missionary. In 1837 he and his bride arrived at Bond Head, and entered upon a life of service and hardship, the successful issue of which tends to show the type of people that they were.

The excellence of the Osler heritage is substantiated by the lives of two of Dr. Osler's brothers. Featherstone Osler practiced law in Toronto from 1860-79, at which time he was appointed Justice of the Court of Appeals for Ontario. Following his service on the bench, he had a successful business career. Britton Bath Osler, ten years older than William, attained to a position in the law which was somewhat similar to that which Dr. Osler attained in medicine. It is said that he was the leading figure at the bar of Canada. He is reputed to have been "the most brilliant of all of the brothers".

The potentialities which Dr. Osler inherited began to unfold in a peculiarly fortunate atmosphere. His propensity for practical jokes and incorrigible behaviour showed itself at an early age in that he was expelled at 13 years of age from the local grammar school because of some prank that he and four of his schoolmates were engaged in. This led to his being transferred to the school at Barrie where he came under the direction of a "famous schoolmaster", Rev. W. F. Checkley. He remained at this school for two years. In 1866, at 17 years of age, he was sent to school at Weston, an institution presided over by the Rev. W. A. Johnson. The school is described as primitive, indeed; the Warden of the school is pictured as having strong opinions, an enquiring mind, a student of the science of the day and a nature-lover. Father Johnson took the students afield, collected data on and specimens of geological, biological and botanical material. He actually possessed a microscope:—he was, in fact, a priest-naturalist. Osler became an enthusiastic co-worker of the Warden, and developed an interest in natural science that was to remain with him forever.

It was at Weston that Osler came into contact with James Bovell, a practicing Toronto physician, and a teacher in the medical college, a crony of Father Johnson's, who dropped his practice and his teaching on week-ends to join the Warden in his studies in natural science. This acquaintanceship ripened into a much closer relation, alike to that of father and son, when Osler left Weston to enter Trinity College in Toronto for the general purpose of being educated and with the more specific design of studying for the ministry. James Bovell was a man of broad training and interests. He had studied medicine at Guy's Hospital in London, and had supplemented his conventional medical education with special studies in pathology. When Osler matriculated at Trinity College, James Bovell was lecturing at the Toronto Medical School in pathology and physiology. He seems to

have been a thoroughly eccentric individual, absent-minded to a fault, a collector and lover of books, a philosopher of sorts, a kindly man, and, above all, an observer and student of nature—especially in the field of zoology. Johnson was the priest-naturalist; Bovell the physician-naturalist.

During his first year at Trinity Osler joined Bovell in his week-end visits to Johnson at Weston where the three of them continued their collection of protozoa, algae, etc., and the two of them spent much time studying this material, classifying and describing it. Think of the influence that these two men must have had upon the mind, character, and tastes of their young disciple! They made him into a naturalist—and he ever remained one.

James Bovell introduced young Osler to Sir Thomas Browne's Religio Medici, and he developed an interest in the subject and the author that remained with him through life. It is said that the first two books that he purchased were Shakespeare's Plays and the Religio Medici. This copy of the Religio was buried with him.

At the end of one year at Trinity, Osler made his decision to give up the ministry and to study medicine. When he told James Bovell of this decision, he exclaimed: "That's splendid, come along with me". So Osler moved into Bovell's home, and the imagination is fired at the thought of what this good, earnest and mentally strong man must have done for the young and enthusiastic seeker after knowledge.

After two years at the Toronto school, Osler, largely on the advice of Dr. Bovell, transferred to the McGill Medical School at Montreal where much better facilities were offered, especially for clinical work.

At McGill Osler's luck in finding inspiring preceptors held. He came to be intimately attached to R. Palmer Howard, Professor of Medicine, who has been spoken of as "a teacher of the old school". He seems to have been a man of wide intellectual interests, earnestness of purpose, and sweetness of nature. Like James Bovell, he literally took Osler into his home, taught him, guided him, and inspired him.

In an address, The Master Word in Medicine, delivered in 1903, Osler acknowledged the debt that he owed to these three men. He said: "When in September, 1870 he (James Bovell) wrote to me that he did not intend to return from the West Indies, I felt that I had lost a father and a friend; but in Robert Palmer Howard, of Montreal, I found a noble step-father, and to these two men, and to my first teacher, the Rev. W. A. Johnson, of Weston, I owe my success in life—if success means getting what you want and being satisfied with it."

It is highly probable that at the time of his graduation from the McGill Medical School in 1872, Osler's mind and character were already established as solid structures, destined to grow in the direction in which they had been pointed by three idealists, all of them imbued with energetic natures, cultivated intellects, and kindly dispositions. The favourable soil of a sound heredity had been cultivated, in youth and young manhood, by these inspired tillers so that a willingness to work, a constant seeking after knowledge, an appreciation of the beautiful, and a desire to be helpful in time of need were the fruits to be expected in the future. The story of his life supports this idea.

Much has been made of the fact that in the long period of thirty-three years, passed under the favourable surroundings of Montreal, Philadelphia and Baltimore, Osler failed to contribute any epoch-making discovery in the scientific phase of medicine. Such a complaint suggests that he was a failure because he was not a Pasteur, a Koch or a Virchow, who discovered and described the infectious origin of disease and the changes in organic structure and function that result from disease. He had not bent his energies to this type of investigation. He was a physician-naturalist, as James Bovell had been, and he continued to think like one in the clinic. He had chosen clinical medicine as his field of work, and in this sphere he became preeminent as an observer, as a student of the natural history of disease, as a clinical investigator, as a teacher, as an author, as a sound evaluator of innovations, and as an inspirer of his associates and students. He has left much of his inspiration in the permanent form of scientific writings, essays, addresses and letters. If his influence is to last it will be because so much of what he did and thought was good, and that it will serve, like the writings of Hippocrates, to idealize the Art.

Osler's scientific studies, of course, go back to his amateurish efforts under the guidance of W. A. Johnson and James Bovell. His first publication, at 19 years of age, was entitled Christmas and the Microscope, and was a description of such experiences. It was not long, however, before he became a medical scientist in his own right. In 1873, working in a laboratory in London, Osler discovered the blood platelets, important elements in the blood that had not been previously recognized. Shortly after his return to McGill, in 1874, he was made Professor of the Institutes of Medicine, which meant that he was to teach physiology and pathology. He did this with characteristic freshness and thoroughness, but he bent his own energies to the study of pathology. He was soon doing all of the autopsies, studying the organs and tissues and gathering specimens for the beginning of a pathological museum. This interest in pathology remained with him through life, reaching its zenith in Philadelphia, and resulted in the publication of many papers on the subject, as well as furnishing a solid foundation for the approach to clinical medicine.

In clinical medicine he contributed much to the understanding of tuberculosis, to the elaboration of Laveran's work on malaria, to a clarification of the diseases of the blood, and to a rounded conception of acute rheumatic fever in its origin, its manifestations and its complications. One disease, polycythemia

vera, is called Osler's Disease, the agglutination of blood platelets immediately upon the blood being withdrawn from the body is known as Osler's phenomenon, and the painful, red swellings that are found in the skin in subacute bacterial endocarditis are called Osler's nodules. This is, of course, a very brief survey of the contributions that he made to the science of medicine. They are the highlights under which a vast amount of genuine achievement lies.

As an author, Osler's output was really stupendous. In 1921 Minnie Wright Blogg, Librarian of the Johns Hopkins Hospital, published a bibliography of his writings. A total of 1195 titles was collected. They cover a great variety of subjects. Most of them deal with clinical and pathological descriptions of disease, many with public health problems, others with medical education and the history of medicine, some are inspirational essays of a biographical nature, and a large number are addresses delivered to students and medical gatherings here and there. His biographical writings and his addresses seem to accurately reflect Dr. Osler's way of life and manner of thinking. They also show his breadth of information and his tastes in literature. They are of such broad interest, and so beautifully expressed, that they must carry interest for the layman as well as for the medical man. These are the writings that will serve, for at least some time to come, to preserve his fame and influence.

The Text Book, The Principles and Practice of Medicine, was published in 1892. It was certainly the greatest text book of medicine that had ever been written up to that time. It was not only an accurate, up-to-date picture of the medicine of the day; it had a style and literary merit, replete with classical references, that made it a pleasure to read and attracted many who were not engeged in the profession of medicine. Frederick T. Gates, an associate of John D. Rockefeller, obtained a copy of this book, and "I read the whole book without skipping any of it. I speak of this—to testify to Dr. Osler's charm, for it is one of the very few scientific books that are possessed of high literary quality. There was a fascination about the style itself that led me on, and, having once started, I found a hook in my nose that pulled me from page to page, and chapter to chapter, until the whole of about one thousand large and closely printed pages brought me to the end." Having been fascinated by the reading of this book, and having been impressed by the relative futility in the treatment of disease that was pictured in it, Mr. Gates pointed out to Mr. Rockefeller the benefits that might be expected from properly endowed institutions for medical research. Thus the book was directly responsible for the founding of the Rockefeller Institute in New York, for a million dollar endowment for medical investigation at Harvard, and for liberal donations to the Johns Hopkins Hospital and Medical School.

This text book went through eight editions during Dr. Osler's life-time, and one edition was published after his death. There were twelve printings by the American publishers. The book was translated into French, German, Spanish and Chinese. It is said that there was scarcely an English-speaking physician anywhere in the world who did not have this text book on his shelves. This book had much to do with his immediate fame; it will probably have little to do with the lasting qualities of such fame.

There is ample testimony as to Dr. Osler's effectiveness as a teacher. As a young man of twenty-three at McGill his organization of the courses in physiology and pathology, and his lectures on these subjects, are said to have brought new life to this department and to have enlivened the medical school in general. When, in 1884, he left Montreal for Philadelphia, it was felt at McGill that they had sustained a serious loss. In Philadelphia he met with continued success as a teacher. Here he introduced bed-side teaching and pathological demonstration. These methods attracted the students to him, and he became the most popular clinical teacher at the University of Pennsylvania. The students were not alone in appreciating his qualities. Many of his associates recognized the great merit in his innovations and in his methods of teaching. The full flower of his capacity as a teacher, however, was reserved for his sixteen years at Johns Hopkins. He brought the student to the patient and the patient to the student. He had acquired a vast clinical experience, and he had interpreted this experience on the background of original study of pathology and physiology.

Rufus Cole, his last resident at Johns Hopkins, summarizes his method of teaching as follows: "His greatest originality as a teacher was shown in his work with students who for the first time were coming in contact with patients. He taught them by joining in the examination of patients chosen at random, whom neither he nor the students had ever seen before. With no other aids, teacher and students attempted to learn all they could by observation alone.—The sessions, as exciting as following the trail of a murderer, were thrilling experiences for the students. Much was learned about the patient and even about mankind. The students were told how to look up the literature dealing with the condition—and were thus introduced to the best in medical literature. Dr. Osler's ready wit helped to make the sessions most interesting and amusing, as well as instructive. He rarely lectured; when he did so, he was not at his best."

Dr. Osler epitomizes his own concept of teaching by saying, "We can only instil principles, put the student in the right path, give him methods, teach him to study, and early to discern between essentials and non-essentials. Education is a life-long process, in which the student can only make a beginning during his college course." It is obvious that he considered the teacher as an inspirer or a failure. He was not a failure in this field.

In the broad field of medical education Dr. Osler did much toward introducing new methods that have

come to be accepted in this country and elsewhere, and which have stood the test of time. When he went to Baltimore he was given a free hand in the development of the medical service of the Johns Hopkins Hospital and of the medical department of the Medical School. This was in keeping with the fundamental concept of Dr. Daniel Coit Gilman, the first President of the Johns Hopkins University, who believed in selecting promising men for key positions and then leaving them alone to develop themselves and their departments in an acceptable manner. In the Medical School this policy yielded the most happy results, for Welch in pathology, Halstead in Surgery, Kelly in Gynecology, and Osler in Medicine rapidly brought their respective departments to positions of leadership in American Medicine, so that their plans of organization and methods of teaching rapidly spread over the country as a whole. They lifted medical education from sordid levels to new heights, they injected idealism into it, and the end is not yet. James F. Coupal. in an editorial in the Memorial Volume says, "probably no writer in Medicine has contributed so much to the task of bringing the study of this Art to a scientific orderly form as has Sir William Osler."

Dr. Osler's expressed intention was to develop a medical clinic for the dual purpose of rendering good services to patients and the offering of opportunities for the teaching of students and house officers to best advantage. He attempted to combine the German system of internships and prolonged residences, so as to make relatively finished physicians of this small group, with the English custom of so-called clinical clerkships, which brought the advanced medical students into the wards for direct contact with patients. The essential soundness of this plan is testified to by its universal application today in medical education. It may have come without him; it came when it did because of him.

The Johns Hopkins Medical School established high standards for entrance requirements. An academic degree was a condition precedent to admission to the school, and, in addition, specific minimum training in biology, chemistry and physics was demanded, together with a reading knowledge of German and French. Medicine was thus made a truly post-graduate study, and the M. D. was elevated to a position comparable to other doctorates. It may be that this conception was too idealistic. There has been some recession from it. The fact remains that the impetus of this movement did much toward improving medical education over the country as a whole and initiated a course of events that led to the elimination of the sub-standard schools that were widely scattered through the nation. Osler certainly played a prominent part in this accomplishment.

A collection has been made of the aphorisms of Hippocrates, two of which occur to me as examples of tersely expressed wisdom: "Experience is fallacious and judgement difficult"; and "Nature cures the disease while the remedy amuses the patient". Osler was also given to similar expressions, combining wit and wisdom, and a large number of them have been printed. Dr. Thayer collected a group of these sayings, having heard them at first hand in his long association with Dr. Osler, and published them in 1919. Bean has published a collection of them, gathered from Osler's writings. A few examples may be cited: "Know syphilis in all of its manifestations and relations and all other things clinical will be added unto thee"; "Let the young man read medical journals and the old books and leave the new books for the old doctor to read"; "Medicine is a science of uncertainty and an art of probability"; "Total abstinence varies in different communities — South of the Mason and Dixon line a mint julep, a toddy or a cocktail before meals or between is total abstinence, and a profusion of eggnogs a Christmas necessity"; "To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all"; "It is easy to see how medicine may be practiced without reading, but it is equally easy to see how badly it may be done". These are but a few examples of what we might term his wisdom in a nutshell.

Osler's appointment as Regius Professor of Medicine at Oxford was, of course, an acknowledgement of his accomplishments in medicine and a tribute to his rounded qualities of mind and character. It was not, however, simply a gesture in this direction. The position carried duties with it, and it was necessary that the occupant of this chair should properly grace it. A letter from T. Herbert Warren to the Prime Minister, whose duty it was to make the appointment, illustrates this point. He quotes Sir William Broadbent as having said to him, "He told me he thought this appointment of Dr. Osler would be a magnificent one for us and full of advantage for the cause of medical education and science in this country and would be recognized and welcomed as such by the medical world generally."

Osler accepted this position somewhat with the idea that it would afford some degree of relief from the burdensome activities and responsibilities that had been built up around him in Baltimore. He said to Dr. Thayer in connection with the matter, "I am on the down grade, the pace of the last three winters has been such that I knew that I was riding to a fall." And Mrs. Osler said something to the effect that it was better to leave Baltimore on a ship than in a box.

As we read of his activities at Oxford, it is difficult to see how his life there could have been any less strenuous than it had been in Baltimore. He simply continued to apply himself throughout such time as the day afforded and must have borrowed some hours from the night, as well. During his fourteen years at Oxford he continued to grow in mental statue, he continued to stimulate those who came in contact with

him, he brought new life to the institutions that came in part under his direction, and he maintained his wide interests in things medical and intellectual. He was universally accepted as a leader in medicine, as a contributor to science, and as an accomplished man in the broad field of cultural development. The days at Oxford served to cement the foundation of his established reputation and to add a superstructure of graciousness and refinement.

Dr. Osler returned to Baltimore on two occasions during my student and house officer days at Johns Hopkins, and I had the pleasure of hearing him make an address and of seeing him hold a medical clinic. Nothing that he said or did at those times remains in my memory. I did not have the good fortune to know him personally. He had left the Hopkins three years before my arrival. His spirit, however, remained behind him, and I should say that his influence was consciously felt by many of the students working in the clinics and in the wards. I soon became anxious for a more tangible understanding of him. I listened to stories about him, I collected anecdotes concerning him, I studied his text book, I read his writings, and I hoped to acquire some of his ways of thinking in medicine, some of his love of intellectual matters, and some of his rigid mental integrity. He has served as an ideal through the years for me, and I have come to believe that he might thus serve students and practitioners of medicine through the ages. Long before his death I had expressed the thought that Dr. Osler was probably the greatest physician of all time, for he had made the history of medicine a part of himself, he had approached clinical medicine through the avenues of scientific methods and had worked in the basic sciences, had enjoyed opportunities for clinical study in three major clinics on this continent, and had developed within himself a broad culture and a superb humanitarianism. In addition, he was possessed of the happy faculty of recording his knowledge and his wisdom through word and pen so that these, together with his personality, are preserved to us, and to future generations, in the form of a record that can continue to inspire.

I find that at least two of his friends and associates felt that his fame was to be an enduring one. At the time of his death, Professor J. G. Adami, of Liverpool, wrote: "So passed into history, untimely, though he had attained to the allotted span, the greatest physician in history." And Sir Clifford Allbutt, Regius Professor of Physic at Cambridge University, spoke as follows: "Such, as reflected in a dim mirror, was one of the most interesting and richly endowed minds and lovable characters in the story of our profession; with the culture of Linacre and the clinical insight of Sydenham, his name will live in our history, not so much, perhaps, for great discoveries as for mastery of medicine, fertile teaching, wide attainments, great natural faculties, cultivated taste and delightful humor; qualities all mellowed by a spirit of wisdom, gentleness and lovingkindness."

The science of medicine will necessarily change with the development of science itself. The growth of physical, chemical, biological and psychological knowledge will modify our approach to the diagnosis and treatment of disease and disorder. Osler's methods in the clinic will be superseded by others. On the other hand, the mores of medicine will remain essentially unchanged. The idealism of our profession, as expressed in the relationship between teacher and student, between doctor and doctor and between doctor and patient, is the foundation of the art of medicine. On this foundation Osler has built a superstructure that has strengthened our ideals and traditions. It is for this that his memory will be lasting.

Is it, then, too much to hope that Ben Jonson's estimate of Shakespeare may find application to William Osler—"He was not of an age, he is of all time".

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HUSH PUPPIES

That a person could claim to be educated or even to be civilized and yet not have known the satisfying pleasure of having eaten hush puppies is hard to believe. And yet such must be the case, as evidenced by a letter which we received recently from a native son of South Carolina who has become one of the medical leaders in the nation. Here is what he wrote:

"Recently there has been a discussion among some of the intelligentsia (?) here regarding the subject of hushpuppies! They are just as ignorant on the subject as one would expect a Yankee to be. I have been approached for authentic information and so I come to you. I have said that hushpuppies are made of corn meal but I do not know the other ingredients, and I have said they have to be fried in fish oil—I said that no other grease is authentic. Can you tell me the story? When and where did it originate? How did it get its name? Can I claim that it is indigenous to South Carolina, or must I include other Southern coastal states? In short, can you be my authority or can you direct me to somebody else who is an authority on the subject."

We promised this distinguished physician that we would start the wheels of hushpuppy research to grinding. We are asking those of our readers who have authentic information on this important subject to send it to us immediately. Under no circumstances will we let a South Carolina boy down—even though he be a nationally known physician now living in a northern state.

BLUE CROSS—BLUE SHIELD NEWS LETTER

The first copy of the Blue Cross—Blue Shield News Letter has just come to hand and we wish to congratulate those who are responsible for the publication of this worthy little news-sheet.

We are particularly proud of two bits of information gleaned from reading this letter. Just six years after its beginning, the South Carolina Hospital (Blue Cross) Plan paid the hospital bill for its 100,000th subscriber. In 1952 only 51.7% of the income from the South Carolina Medical Service (Blue Shield) Plan was paid to the doctors, but in June 1953 this had increased to 78.4%.

Blue Cross and Blue Shield in this state have grown steadily—and justly so. The Board of Directors of each organization is composed of men who are concerned with serving the public, and who are intent upon giving every subscriber full value for every dollar invested. The members of these Boards and the Executive Director, Mr. Allan Howland, are rendering good service to the hospitals, the doctors, and the people of South Carolina, and are to be commended for their efforts.

PHYSICIANS KEEPING PATIENTS IN OFFICE OR CLINIC OVER TWENTY-FOUR HOURS MUST HAVE HOSPITAL LICENSE

In 1947 the South Carolina General Assembly passed the "Hospital Construction Act" which, among other things, provides for the licensing of hospitals by the State Board of Health. Of interest to all physicians is the following section:

"32-781. License required for hospital operation.

"No institution which maintains and operates organized facilities for the diagnosis, treatment or care of two or more nonrelated persons suffering from illness, injury or deformity or where obstetrical or other care is rendered over a period exceeding twenty-four hours shall be established, conducted or maintained in the State without first obtaining a license therefor in the manner herein provided."

Licensing standards have been established and in effect since 1950; however, many physicians have not learned of these requirements and build offices or remodel other buildings for use as offices in which they plan to keep obstetrical and minor surgery cases and then learn that they do not meet the licensing requirements. In the majority of instances these deficiencies are those relating to fire safety and accident prevention such as floor space, adequate exits, corridors, safe electric fixtures, etc., all of which could have been avoided with little trouble or expense if provided for

in the planning stage. All physicians planning to build or remodel offices or clinics are urged to contact the Hospital Section of the State Board of Health before definite plans are drawn or construction is started without plans.

INTERNS AND RESIDENTS

The National Advisory Committee has reviewed a policy used by the New York State Advisory Committee and desires that it be followed in all states. It relates to a registrant who is completing a hospital year, whether he is an intern or resident. If he has been deferred for the purpose of continuing his training during the past year he should be advised that he was declared essential for that twelve-month period and that he is now available.

If a resident takes up his educational program in another state, that state committee should be notified of the fact that he is considered available by you and that his status should be decided by the committee in the new state of residence. Practically without exception, all interns and residents with double liability, i.e., those under 28, should enter service at the completion of their internship; likewise, those in Priority III under the age of 30 should not accept or be assigned to additional training except in rare instances where it is absolutely unavoidable. The two groups mentioned above should serve as a principal source of supply for the calls during much of this fiscal year. It is hoped that there willl be a sufficient number of them so that it is not necessary to call those who are over 30, i.e., born before August 30, 1922.

NOTES ON MEDICAL CIVIL DEFENSE CONFERENCE AT ANNUAL MEETING OF AMERICAN MEDICAL ASSOCIATION

C. L. Guyton, M. D.

During 1952 the Council of the State Medical Association appointed me to serve as their representative at meetings concerned with Civil Defense. In April of this year the Council on National Emergency Medical Service of the American Medical Association announced that a one-day Medical Civil Defense Conference would be held on Sunday the day preceding the opening of the National Convention. At its May meeting the Council authorized my attendance at the one-day meeting, after which the State Board of Health authorized me to remain and attend the meeting of the Section on Preventive and Industrial Medicine and Public Health which devoted one day to a panel on Civil Defense. This is a report on the highlights of the Sunday Conference, with a listing of topics at the other meeting. I will be glad to meet with any local or county society to discuss in more detail such information regarding Civil Defense as is available at this time.

Dr. James C. Sargeant, Chairman, Council on National Emergency Medical Service, stated in his opening remarks that the A.M.A. had approved the appropriation of limited Federal aid for C.D. He thinks physicians must lead in training and organizing those groups who will serve as supporting units of the medical services. There is need for Regional organization on a nation-wide basis but this will have to depend on coordination of states after they develop their own organizations. This conference of state medical association representatives is for the purpose of reviewing what has been accomplished and discuss future plans.

Dr. Carroll P. Hungate, Missouri Medical Association, discussed his observations on recent atomic experiments in Nevada. He stated that while radioactivity was intense during and immediately following an atomic explosion it decreased rapidly, was down to 1 per cent of its initial strength after 1 hour and down to .01 per cent at end of one day. Monitoring instruments are 15 to 35% inaccurate. Require frequent calibration (using radioactive cobalt) and are not worth present high cost except for psychological effect. It is questionable if an atomic burst over an American city would produce a conflagration similar to that in Japan. Need more research on effects a blast might have on an American-type city.

Dr. Norman Keifer, Director of Health and Special Weapons Defense Division, F.C.D.A., reviewed F.C.D. medical program. The United States has seven C.D. regions. South Carolina is in the region with headquarters in Atlanta, Georgia. Each region has an advisory committee nominated by professional groups and a Regional Medical Director to coordinate federal activities in their respective regions. Federal plans are based on an estimated eleven million casualties with seven million survivors. Of these, 3.3 million will require hospitalization, with 2.3 million being in improvised hospitals. This number is based on an all-out attack on major target areas. Now have on hand supplies to care for two million for one week. These supplies are of type needed for mass casualties. They are so placed that they can be distributed to states in devastated areas. It is a state's responsibility to provide for distribution within its borders. States must provide first-aid stations and provide supplies for them until federal supplies become available. Federal regulations should be used as a guide in order that standard supplies and methods be used by everyone everywhere. This will prevent delay and confusion when workers and supplies are shifted from one area to another. Emergency and improvised hospital facilities should be selected and staffed, including auxiliary and maintenance personnel.

There are one million units of plasma and 350 thousand units of Dextran available. Gas masks have been developed for civilian and C.D. workers but are in short supply. F.C.D.A. can't always furnish reasons for some advice because it is based on security information.

Dr. Thomas H. Alphin, Assistant Director, Washington Office of the American Medical Association, reported on chemical warfare defense and mortuary services. There has been developed a new nerve gas that

is ideal because it is toxic in low concentration, kills quickly and is not detectable. Toxic action of "nerve gas" is due to irreversible inactivation of enzyme cholinesterase with consequent accumulation of toxic amounts of acetylcholine leading to profound disturbance of smooth muscle and nerve function. Resembles muscarine and nicotine poisoning. Old world war gases are not very good with possible exception of mustard gas which is satisfactory for use on industrial areas because it is readily absorbed by the oil in machinery. Since industry today has large stores of toxic industrial chemicals, these will become hazard after a bombing attack. Protection against gas must be individual. Gas mask for continuous use costs $15 to $20. Army mask can be modified for satisfactory use. Now trying to develop cheap mask that would serve during one attack for civilians. Problem is the use of production facilities to produce adequate numbers and these would cost approximately $2 each. Regarding mortuary services, he stated that when victim is found three things are required: Is he dead?—Who is he?—Did he die because of crime? Since the first and third facts can readily be determined after an attack we will be concerned chiefly with identification. Since mass burials will be necessary the best thing is to collect personal effects and tie them to the body so that identification can be made at later date.

Dr. James H. Lade, Director Civil Defense Affairs, New York State Department of Health, reviewed recent medical civil defense activities in New York State. He stated the New York physicians were not responsible for Radiological Defense as this can be done by others. Packaging of supplies and equipment most important. Units must be easily transported. They are using cast aluminum litters which can be converted into cots. Using cardboard suitcases for first aid supplies. Have found paper blankets unsatisfactory. Advises that antibiotics be sorted and gauze cut before storing. Seventy per cent of their antibiotics are in state depots and institutions. These are under state control. Thirty per cent are in target cities dispersed in buildings that are to be used, if not destroyed. They find that to date their antibiotics are not deteriorating. If deterioration begins they will be replaced when fifty per cent deterioration occurs. They have purchased eight mobile Army surgical hospital units costing $42.500 each. Hospital supplies are being stored in annex to school buildings. Each room in building is labeled as to use. Have supplies for 24 hours, after which supplies will come from state depots. They have found pressure cookers satisfactory for use as sterilizers.

Dr. Lester M. Petrie, of Georgia State Department of Health, reviewed the Georgia plan which is based on its use in natural disasters. He substituted for Dr. Edgar M. Dunstan, Chairman of the Georgia State Medical Association Committee on Emergency Medical Service. Georgia has reached what they term the First Stage Mobilization of the C.D. Health Services. They are asking American Legion Posts in key cities in each of their ten Congressional Districts to mobilize first-aid units. In these key cities local health services director will ask each hospital board of trustees to appoint a C.D. chief of staff to work with hospital administrator. These three will assign duties to all medical and allied health personnel in the city to one of three groups. Those assigned to hospitals. Those assigned to the mobile first-aid units. Those assigned to reserve pools in the assembly points near the city C.D. control centers. Hospitals will then: (1) Complete their staff organization (using Improvised-Hospital Manual); (2) Organize and train Parent-Teacher Association personnel in neighborhood of affiliated schools for service in hospital or on mobile first-aid team; (3) Supply schools with improvised equipment and supplies until funds are available for standard equipment and supplies. Remaining hospital staff will be used to train units for improvised hospitals, to form special teams, Sorting, Shock, Burns, etc., and to reserve pools. American Legion Posts are to organize, train and equip their units, using F.C.D.A. Publication TM-11-1.

Mr. Van Peterson, Administrator, F.C.D.A., discussed future program of F.C.D.A. He stated that it is difficult to maintain interest in civil defense because: (1) There is tendency to put off C.D. until tomorrow; (2) People hope there will be no third world war; (3) Fatalistic attitude of the "quitters". He reminded us that Russia has repeatedly stated that Communism and Capitalism cannot exist together. It is not a question of will we have war but when will it come. In the meantime C.D. should be placed on peace-time basis to care for natural disasters. He described recent Waco, Texas, tornado disaster. At one time there was demand for federal construction of bomb-proof shelters but this was never supported by F.C.D.A. as they are not practicable and are too costly. Individual family shelters are o.k. An open ditch gives good protection if deep enough. Since this country will not initiate the war, we will receive the first attack. Unable to prevent penetration by enemy aircraft. Warning time will be an estimated fifteen minutes. Need a line of listening posts around entire country but this would cost twenty billions of dollars. Our strategic air command may be caught on ground and unable to fight back. Our difficulty will be to control population and evacuate cities. Industry should prepare to protect itself. The President is sold on C.D. and has ordered federal agencies to support it.

There was an open forum on:

1. Responsibility for Stimulating the Interest of Individual Physicians in Civil Defense Activities.
2. Lack of Information Regarding Chemical Agent Identification.
3. Standard Operating Procedures for Care of Casualties and the Organization of Improvised Hospitals.

4. Professional Training Programs.
5. Participation by Dentists in C.D. Activities.

On Monday following this Conference, the Metropolitan Life Insurance Company gave a demonstration of their Civil Defense Emergency Procedure in effect at their home office in New York where they have fifteen thousand employees in two adjacent buildings. This demonstration included the establishment of a casualty station with simulated cases being given first aid, with splinting of fractures, placing on stretchers, attaching of identification tag listing injuries and treatment and finally loading on New York City bus, all of which have been equipped with stretchers and first-aid supplies.

At the Section on Preventive and Industrial Medicine and Public Health's panel on Civil Defense, the following topics were discussed:

1. Health Programs in Civil Defense.
2. Emergency Public Health and Sanitation.
3. Blood Derivatives and Plasma Volume Expanders.
4. Civil Defense in Chemical Warfare.
5. Civil Defense for Biological Warfare.
6. Civil Defense in Industry.
7. Improvised Hospitals.
8. Medical Civil Defense in Target Cities.
9. State Civil Defense Programs.

DEATHS

LORENZO T. GREGORY

Dr. Lorenzo T. Gregory, 83, died at his home in Kershaw on July 28. Dean of the Kershaw physicians and one of the oldest practitioners in the state, Dr. Gregory had continued his work up to a few months before his death.

A native of Lancaster county, he secured his medical education at the Medical College of South Carolina (Class 1896). Upon graduation he moved to Kershaw where for 56 years he carried on the work of a family physician.

In additiin to his medical work, Dr. Gregory served his community in many capacities—as mayor for two years, as chairman of the school board, as one of the organizers of the Kershaw Cotton Mill, as one of the directors of the Springs Mills, as a director of the Bank of Kershaw, and as a member of the Baptist church.

Dr. Gregory is survived by his wife, two daughters, and two grandsons.

EUGENE LOGAN POWER

Dr. E. L. Power, 67, died of a heart attack on July 30.

A native of Abbeville, Dr. Power was graduated from the University of Virginia Medical School in 1910. From 1916 to 1940 he practiced medicine in Korea, then returned to his home town where he worked up to the time of his death. Prominent in civic and church work, he was greatly loved by all who knew him.

Dr. Power is survived by his wife, and three daughters.

OLLIE HAGAN McCORD

Dr. O. H. McCord, 67, died at his home in Woodruff on July 25 after a lingering illness.

A native of Hodges, Dr. McCord received his medical education at Emory University (1910) and postgraduate education at Tulane University. He then opened an office for the practice of general medicine in Hodges. In 1918 he moved to Woodruff where he carried on a large practice until poor health forced his retirement.

In addition to his medical work, Dr. McCord had large interests in farms and orchards. He was recognized as one of the leaders in his church and in his community.

Dr. McCord is survived by his wife, one daughter, and two sons.

NEWS ITEMS

Three Columbia physicians have recently been notified of their election as Fellows of the American Psychiatric Association. They are Dr. William S. Hall, Dr. Sol B. McLendon and Dr. Joe E. Freed.

Many new physicians have located in South Carolina since the first of the year. Some of these are listed below.

Dr. Donald L. Duerk ---------- Myrtle Beach
Dr. Gerald D. Fielder ---------- Union
Dr. W. I. Jones ---------- Great Falls
Dr. John Tate ---------- Calhoun Falls
Dr. Rambert Oliver Burgess ---------- Spartanburg
Dr. George S. Tyson ---------- Florence
Dr. S. L. Collins ---------- Conway
Dr. W. Donald Hiers ---------- Branchville
Dr. William J. Henry ---------- Chester
Dr. Edwin H. Miller ---------- Greenwood
Dr. Wilson Greene ---------- Sumter
Dr. Hugh W. Mole ---------- Denmark
Dr. M. Edward Rice ---------- Mullins
Dr. J. W. Blanton, Jr. ---------- Chesnee
Dr. William Earl Fender, Jr. ---------- Canadys
Dr. M. E. Birgstestt ---------- Cameron
Dr. H. L. Allen ---------- Bamberg
Dr. Ira F. Wheeler ---------- Inman
Dr. Boyd Hames ---------- Union
Dr. William H. Hunter ---------- Clemson
Dr. Robert H. Burley ---------- Clemson

The following have been appointed by Governor Byrnes to the State Board of Medical Examiners: Drs. L. Emmett Madden and Harold E. Jervey, Jr., of Columbia; Dr. A. Richard Johnston of St. George, and Dr. William P. Turner, Jr. of Greenwood.

Dr. D. J. Owens, who has been practicing in St. George for the past five years, has received orders from Uncle Sam to report for a tour of duty.

Dr. William T. Lemmon, a native of Sumter, has been promoted to Professor of Surgery at Jefferson Medical College, Philadelphia.

Dr. Otis M. Pickett, who has practiced at Mount Pleasant and Sullivan's Island since 1946, has moved to Key West, Florida for duty with the Navy.

Dr. J. R. Paul, Jr. has given up his private practice in Charleston and has accepted the position of Assistant Professor of Pediatrics at the Medical College of South Carolina.

FOURTH ANNUAL MEETING
SOUTH CAROLINA CHAPTER, AMERICAN COLLEGE OF SURGEONS

CHARLESTON, SOUTH CAROLINA

MONDAY, OCTOBER 19, 1953

9:00 A.M. Registration—Baruch Auditorium, Medical College of South Carolina
Presiding: Dr. F. E. Kredel, Charleston, South Carolina

9:30 A.M. Simplified Duodenotomy as an Aid in Biliary Surgery
Furman T. Wallace, M.D., F.A.C.S., Spartanburg, South Carolina

10:00 A.M. Meterotopic Pancreatic Cystadenoma
William S. Brockington, M.D., F.A.C.S., Greenwood, South Carolina, and McK. P. Moore, M.D., Charleston, South Carolina

10:30 A.M. Repair of the Cleft Palate by a Modified Passavant Technique
George T. McCutchen, M.D., F.A.C.S., Columbia, South Carolina

11:00 A.M. Motion Picture—"Principles of Reduction of Fractures"
Courtesy of Veterans' Administration

11:45 A.M. The Radical Cure of Massive and Recurrent Inguinal Hernia Using Polyethylene
Walter Thompson, M.D., B. Ch., F.R.C.S., Spartanburg, South Carolina

12:15 P.M. Operative Cholangiography
V. W. Brabham, M.D., F.A.C.S., Orangeburg, South Carolina

1:00 P.M. Luncheon and Business Meeting—Medical College Library
Presiding: Dr. William H. Prioleau, Charleston, S. C.

2:30 P.M. Appendectomy: Indications and Results.
Edwin P. Lehman, M.D., F.A.C.S., Emeritus Professor of Surgery, University of Virginia, Charlottesville, Virginia

3:30 P.M. Panel Discussion on Trauma (under auspices of Committee on Trauma)
Moderator: Austin T. Moore, M.D., F.A.C.S., Columbia, South Carolina
Kenneth M. Lynch, Jr., M.D., F.A.C.S., Charleston, S. C.
James T. Green, M.D., F.A.C.S., Columbia, South Carolina
David A. Wilson, M.D., F.A.C.S., Greenville, South Carolina
John M. Brown, M.D., Charleston, South Carolina
William H. Bridgers, M.D., F.A.C.S., Columbia, South Carolina
Peter B. Wright, M.D., F.A.C.S., Augusta, Georgia

6:15 P.M. Refreshments and Dinner—Francis Marion Hotel

8:30 P.M. Combined Meeting with Charleston County Medical Society
Baruch Auditorium, Medical College of South Carolina
Presiding: Dr. Vince Moseley, Charleston, South Carolina
Edwin P. Lehman, M. D., F.A.C.S., Emeritus Professor of Surgery, University of Virginia, Charlottesville, Virginia.
Intestinal Polyps

TUESDAY, OCTOBER 20th

8:00-10:00 A.M. Operative Clinics—Roper Hospital
Baruch Auditorium, Medical College of S. C.
Presiding: Dr. Alton G. Brown, Rock Hill, S. C.

10:15 A.M. Pancreaticoduodenotomy for Carcinoma of the Ampulla of Vater
Henry W. Mayo, Jr., M.D., F.A.C.S., Charleston, South Carolina

10:35 A.M. Cytologic Diagnosis: A Survey of Its Problems and Effectiveness as a Diagnostic Procedure
H. R. Pratt-Thomas, M.D., Charleston, South Carolina

10:55 A.M. Splanchnic Blocks
F. E. Kredel, M.D., F.A.C.S., L. B. Jenkins, M.D., and Milton Weinberg, M.D., Charleston, South Carolina

11:15 A.M. The Fenestration Procedure
G. W. Bates, Jr., M.D., Charleston, South Carolina

11:35 A.M. Peripheral Arterial Embolectomy
James B. Martin, M.D., F.A.C.S., Charleston, South Carolina

11:55 A.M. Cine Clinic—Surgery for Varicose Veins
William H. Prioleau, M.D., F.A.C.S., Charleston, South Carolina

BOOK REVIEWS

FOOL'S HAVEN, a novel by C. C. Hawley.

Published by House of Edinboro, Publishers, Boston.

A young girl, soon to be married, develops a severe abdominal pain. Her mother, who believes in faith-healing, calls in the pastor to pray with her. The girl's aunt, who has no sympathies with faith-healing, calls in her physician who makes a diagnosis of an acute appendicitis and advises immediate operation. The mother and the pastor insist that prayer is all that is needed, and the girl feels that her first loyalty is to them. The girl subsequently dies and the autopsy shows a ruptured appendix with generalized peritonitis. The mother and pastor are tried for manslaughter. The pastor is acquitted, the mother receives a sentence.

This, in brief, is the story around which this novel, FOOL'S HAVEN, is written. The author, C. C. Hawley, presents it in a highly readable style. The hero of the book is the young man to whom the girl is engaged—a lad with no fixed religious beliefs, and yet one who is unable to comprehend the hold which faith-healing has on his fiance and her mother. Through his thoughts and his rebellion against what he considers a crime, the author sets forth the medical-legal-religious problem which is involved.

If you want a well written and intensely interesting story which will give you a great deal to consider and think about after you have laid the book aside, FOOL'S HAVEN will be to your liking.

CORRESPONDENCE

DUKE UNIVERSITY

13 July 1953

Dr. Julian P. Price, Editor
Journal of the South Carolina Medical Association
105 Cheves Street
Florence, South Carolina

Dear Doctor Price:

The Duke University School of Medicine invites this year again physicians of North Carolina, of South Carolina, and of Virginia to attend a medical symposium on the Duke University campus. The theme selected for this year is "Psychiatry for the Non-Psychiatrist". The date for the Symposium is 1 and 2 December 1953. The speakers of the program will be psychiatrists familiar with the problems of the non-psychiatric physician practicing in the community. The program which will be mailed in October to all members of the medical societies of the three states and of the neighboring counties of Tennessee, will concern itself with the frequent emotional adjustment problems at different age levels, with "Psychosomatic Medicine in Everyday Practice", and there is a section on "Front Line Psychiatry in Modern War", "Psychiatry in Industry", and "Rural Psychiatry".

I would be most grateful to you if you could announce this Symposium in the Journal of the South Carolina Medical Association and, if this is possible, have short reminders in subsequent issues. If you wish to receive any additional information now, please write to me.

Yours sincerely,

Hans Lowenbach, M. D.
Professor of Psychiatry
Durham, North Carolina

WOMAN'S AUXILIARY
SOUTH CAROLINA MEDICAL ASSOCIATION

President: Mrs. David A. Wilson, Greenville, S. C. **Publicity Secretary: Mrs. N. D. Ellis, Florence, S. C.**

TWO NEW AUXILIARIES ORGANIZED

The Woman's Auxiliary to the South Carolina Medical Association is proud to announce the organization of two new county auxiliaries during the past year. These auxiliaries are Aiken, with Mrs. Eugene Hall as president, and Kershaw, with Mrs. John M. Brewer as president. Mrs. A. T. Moore of Columbia, first vice-president of the state auxiliary was in charge of organization and was assisted in this work by Mrs. C. R. May, Jr., of Bennettsville, fourth vice-president. We welcome these new auxiliaries and wish for each of them a happy and successful first year.

SOUTHERN MEDICAL AUXILIARY

You are most cordially invited to attend the convention of the Southern Medical Auxiliary in Atlanta, October 26-29. The program has been streamlined to one meeting of about 2 hours followed by the Doctors' Day luncheon, thus allowing plenty of time for shopping, sight-seeing and just plain visiting.

It is of particular interest to us here in South Carolina that the Doctors' Day luncheon will be presided over by Mrs. Alfred F. Burnside of Columbia. And it will also be of special interest that the speaker for that occasion will be Dr. Frank G. Slaughter, author of "In a Dark Garden" and other best selling novels.

Of course, you know that Southern is an organization apart from your county, state and national auxiliaries. Membership is open to physicians from the 16 southern states, and if your husband belongs you are automatically a member with no dues to pay. The Southern Auxiliary sponsors only three formal projects: Doctors' Day, Research and Romance of Medicine, and a scholarship fund. But the main purpose of the Southern Auxiliary is the promotion of friendliness among our southern doctors' families.

So plan to meet us at the Henry Grady Hotel in Atlanta on October 26. We promise you a short, interesting meeting and a long list of new friends.

Mrs. Kirby D. Shealy
Councillor for South Carolina
Southern Medical Auxiliary

SOUTHERN AUXILIARY PLANNING STREAMLINED CONVENTION

Mrs. Richard F. Stover, President of the Woman's Auxiliary to the Southern Medical Association, has announced that the convention to be held in Atlanta, Georgia, October 26-29 will be streamlined so that time may be given to the members for shopping

being with their husbands and visiting with friends.

All regular meetings of the Auxiliary will be held at the Henry Grady Hotel, where there will, also, be a registration booth; another registration booth and exhibits will be at the Municipal Auditorium. Meetings are planned as follows: Tuesday 10 A. M. to 12 Noon, Wednesday 10 A. M. to 11:30 A. M.

Mrs. Leo J. Schaefer, President of the Woman's Auxiliary to the American Medical Association, will be guest speaker and Mrs. Stanley A. Hill, Corinth, Mississippi, will be installed as president at the Wednesday morning meeting.

A Research and Romance of Medicine Luncheon or Tea will be held on Tuesday. Dr. Frank G. Slaughter, famous surgeon and novelist will be the guest speaker. A Doctors' Day Luncheon honoring two "Doctors of the Year from the South", Dr. William L. Pressly, Due West, S. C. and Dr. N. M. Travis, Jacksonville, Texas, will be held at the Atlanta Athletic Club on Wednesday at 12:15 P. M. There will be an outstanding speaker for this luncheon. All auxiliary members and their husbands are invited. A large crowd is expected.

Mrs. E. A. Bancker, Chairman of the Arrangements Committee, has advised us that many reservations have already been made at the hotels in Atlanta. From this we anticipate a large and successful meeting. We are also informed that the ladies of Atlanta, Foulton County and the entire State of Georgia are looking forward to this convention with a great deal of pleasure.

If you have not already done so, we suggest that you make your hotel reservations now. Address your request for reservations as follows: Bureau of Housing, Southern Medical Association, 801 Rhodes-Haverty Building, Atlanta 3, Georgia.

ADVISORY COMMITTEE TO S. C. MEDICAL AUXILIARY

Dr. William Schulze, Chairman
7 Sumner Street
Greenville, S. C.
Mr. M. L. Meadors
Florence, S. C.
Dr. Roderick MacDonald
Rock Hill, S. C.
Dr. Vince Moseley
Medical College of South Carolina
Charleston, S. C.
Dr. W. D. Hastings, Jr.
Spartanburg, S. C.
Dr. Wyman King
Batesburg, S. C.

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Greenville, S. C.

THE TEN POINT PROGRAM

M. L. MEADORS, EXECUTIVE SECRETARY AND COUNSEL

CONSTRUCTIVE MEDICINE AT WORK

By Edward M. Gunn, M. D.*

We, the people of South Carolina, are privileged to be living in a state where the social and economic elements and essentials of man's life are maturing in a balanced manner. Our good fortune is the result of the application of considered judgement and everyone's desire to do everything better than it can be done elsewhere. We have today's ultimate in state, community, and individual pride. Our state is known far and wide for its agricultural, textile, and pulp and paper leadership, and for its historic and geographic features, to mention a few of its many assets. Likewise, we are all aware of the innumberable measures which have been and are being taken to better the lot of each individual, such as: broadening employment opportunities, improving and increasing educational programs, emphasizing faith, encouraging the sound utilization of earnings, and raising the level of health and sanitation.

Where activity, determination, and progress are found there must be continuing adjustments to adequately support the changes. South Carolina is reported to be at the top among all the states for industrial expansion since 1948. According to the State Research, Planning, and Development Board, since 1945 more than 100,000 new jobs have been created with new payrolls in excess of 200 million dollars. The number of new industrial plants and plant expansions in South Carolina is in the thousands. Some 1000 new plants and 1100 plant expansions have come into

*Dr. Gunn is the Medical Director of Sonoco Products Company, Hartsville, S. C.

being. This phase of our development and progress alone requires skills unknown to South Carolinians a few years ago and naturally it requires related supporting services which were not needed in the past.

Progress and the changing work environment also place terrific demands upon our available manpower. Our economic enterprises must in a sense compete and compromise with our military forces for qualified manpower—each is searching for higher quality individuals and for ways to use the lower quality workers most effectively. Confronting us in this respect is the fact that there are just so many people available, hence each person has to be evaluated carefully and placed in an assignment for which he is qualified physically, mentally, and temperamentally. Once placed, each must be developed to and maintained at the highest degree of efficiency, dependability, and proficiency possible. In this way, almost every person can be a contributor to his community's welfare and can be self-supporting. Each member of this employed population must be taught to be a better worker, a better person, and a real credit to his community. It is our obligation to posterity not only to learn how to have each person contribute more, live longer and better, and work more safely, but to practice what we learn.

There are still some reluctant and unthinking industrial organizations which have been unwilling to accept the fact that modern medicine serves the workers of small and large industry through industrial health programs in a way that benefits workers and industry, alike, in production, money, health, and welfare. Enlightened industry, however, no longer thinks primarily of its employees as "bodies" who operate machines "flesh and bones" who have accidents, men who have special skills, and absentees. They know employees are human beings and essential members of their industrial families. Every thinking person knows that all employees are not only essential to proper and efficient production, but that they are equally important as individuals for they are the community.

While the introduction of a full-scale industrial health program into a community may seem radical to a few, it is private enterprise's answer to the threat of government-controlled medicine. It is actually a development in which everyone can take great pride. In many areas, it is regarded by conservative medical groups as the medical profession's challenge and answer to the threat of "state medicine". From a nation-wide viewpoint, South Carolina is quite in arrears in the matter of industrial health programs considering its prominent position in the nation's industrial family. As in every other category, signifying accomplishment, our state will catch up with the progress of other states and ultimately lead in industrial health. Industry in the state will accept the advice, suggestions, and challenges of the many interested and recognized groups associated with health, safety, labor, and industry.

The need for employee health and welfare support is not new, for it has been established and advocated over a period of years by the National Association of Manufacturers, every labor union, the American Medical Association, the American College of Surgeons, the Industrial Medical Association, the American Public Health Association, the National Safety Council, the South Carolina Accident Prevention Conference, and many others. All of these organizations are devoting a tremendous amount of time, effort, and money toward improving the lot of the employed and toward obtaining more from the potentialities each employee possesses. It is another phase of economy and efficiency, which is measured in lives and longevity as well as in satisfaction and dollars.

We all know that anything new appearing on our horizon of thinking and doing causes a stir, but at the same time it is safe to say that each development of a private enterprise nature benefiting the health and welfare of man has also added to his pleasures, conveniences, and probably his financial status. None of us would do away with the many other advances made by preventive medicine. Likewise, there is no place where industrial health programs have done any worker harm nor deprived good physicians or surgeons of around the clock calls, full waiting rooms, and the pleasures of a fruitful life.

Industrial health is an attitude toward the practice of medicine—it may be referred to as an expression of constructive medicine. It is designed to keep *well* people on the job, and if they are disabled from any cause to return them to work as quickly as possible at minimum expense.

To meet those objectives, an industrial health program includes provisions for the protection, conservation, and maintenance of mental and physical health for the industrially employed. Industrial hygiene, sanitation, mental hygiene, and health education take their proper place in such a program. It is a comprehensive activity for it takes into consideration many factors beyond those common to private practice, such as: engineering, chemistry, toxicology, sociology, statistics, and the principles of the prevention of disease and accidents.

A physician who devotes his full-time to such a program is called upon to apply the principles of modern medicine and surgery in his management of sick or well industrial workers and to *supplement* the services of the remedial agencies (private practitioners) of medicine by the sound application of hygiene, sanitation, and accident prevention. In addition, he must have an adequate and cooperative appreciation of the industrial, economic, and administrative problems and responsibilities of industry as they relate to society.

Through the application of this knowledge, it is obvious that a high standard of health and safe placement can be attained which can be maintained by periodic medical rechecks and an associated program

of accident and occupational disease prevention carried on by medical and safety departments.

The scope of research, development, and practice which are now ours and will come from the resources, interest, and effort now supporting industrial health are unlimited. Today, they have made it practical for hundreds, even thousands, to work safely with death-dealing radiation sources. Almost every toxic or disease-producing chemical has been identified. "Safe" levels of air-borne concentration for industrial chemicals that can be tolerated without ill-effects by workers in a given period have been established. Devices to measure the air-concentrations of such substances are in use. As a result, it is unlikely now that any industrial organization has an illness producing danger of this sort which cannot be effectively identified and controlled.

Human engineering is making it possible for man to operate and control machines which are supposed to serve man—and developing mechanisms which do what man cannot do. Heat, ventilation, noise, and vibration studies and control measures are pointing the way toward a working environment that is safer than that in the average home. Machinery and production practices are being altered daily to reduce the number of traumatic accidents.

In the course of a day, the industrial physician will listen to the questions which arise in the minds of employees as a result of brief visits to their personal physicians and surgeons, and he will take the time to answer the questions, which in turn allays the employee's confusion and apprehension. He searches out employees who need early or preventive care and encourages them to obtain adequate private medical practice attention. He routs out the occasional absentees who find it more convenient to be "ill" than to work. Many monitor hospital, surgical, and health insurance programs in an attempt to keep the big picture of medical care costs on the true side. All of them administer to or secure competent consultant care for employees suffering from occupational diseases or injuries. Each listens to management, supervision, and workers, always searching for information and leads by which better human relations can be effected. All must be impartial, never taking sides on any issue, but present the facts as they see them. They are intimately acquainted with the details and machinery of production and the feelings of those who accomplish the processes. They are available to all employees for the purpose of consultation and advice. They treat all confidence as such and patient's records are covered by all ethical and legal protective measures. They do not tolerate abuses of employees from any quarter and they work untiringly for the benefit of the employee while protecting the employer's interests.

There is no plant too large nor too small to have an adequate industrial health program. Small or large plants elsewhere have been and are sharing joint facilities—each have seen in a short time the multitude of benefits that accrue to those who really have an interest in the health and welfare of their workers.

South Carolina's industry should and will demand that our profession take a more intimate interest in and gain a thorough understanding of the worker in his working environment. The medical profession of our State must be prepared to answer these demands without hesitation. Both parties and their objectives will require the kind of valuable assistance and guidance which can only be made available through an alert and active Industrial Medical Office in the South Carolina State Board of Health. This is another phase of the advance of medicine in its service to man.

It is interesting for us all to realize that, in truth, those who specialize in industrial health are engaged in the early detection of illness and the promotion of good health. They subscribe to the W. H. O. definition, "Health is a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity, which makes possible the highest quality of effective living and of service".

O men with sisters dear,
O men with mothers and wives,
It is not linen you're wearing out,
But human creature's lives!

—*Thomas Hood, Song of the Shirt*

THE 1954 DIRECTORY

During the month of August questionnaires on postal cards were mailed to all members of the Association for the purpose of obtaining information to compile the new Directory. At this writing about two-thirds of the questionnaires mailed have been returned. It is planned to have the Directory printed in time for mailing to the members immediately after January 1, 1954. In order to do this, the material will have to be in the hands of the printer by the middle of October. Attention is again called to the necessity of prompt completion and return of the questionnaires. Members who have not returned theirs by press date will be carried in the new Directory according to such information as we have on file.

PROFESSIONAL STANDARDS AND PUBLIC RELATIONS

SOME LAWYERS have developed the habit of looking yearningly at the medical profession when some of the problems of their own profession loom large before their eyes, especially in the field of public relations. It is true that our sister profession has a whopping public relations budget, gets lots of time and favorable mention on radio and television, and is courted by popular magazines which enjoy glamorizing advances in the science of medicine.

But the medics have their own problems, too, and we couldn't help but notice it in reading just one day's newspaper a short time ago. One news item reported

a bitter intra-professional quarrel between two professional organizations because one of them had charged publicly that certain abuses were too prevalent, such as the practice of "ghost surgery" wherein the patient is led to believe that the big-name surgeon will operate, only to have an underling take over after the patient is under the anesthetic. On the same page was a report of a contest by a group of osteopathic physicians for membership privileges on the staff of a new hospital. Lawyers may well be glad that their profession does not have to cope with problems like those which the existence and practice of the osteopaths present to the medical profession.

Then there was the letter by the newspaper doctor to the high school girl who had asked his advice about studying to be a doctor. He told her that in the good old days four years of high school, four years of medical school, and the state board examinations would have made her a doctor. Now, he said,

"When you leave high school you must dawdle for four years in the environs of higher learning before you can enter medical school, if you can find a medical school which will accept you as a student."

He took a crack at internships, and then confessed:

"But as I say, I'm prejudiced against the highfalutin' monkeyshines of modern medical education. I'm agin it because I have never observed any difference between the professional ways of doctors with only a high school pre-medical education."

Webster's definition of a profession as "a calling in which one professes to have acquired some special knowledge" refers literally to training in the practices and tools of the profession. It may be that a knowledge of sociology, foreign languages and the rest of a liberal education is of no value in treating patients. But we've had some bad experiences with doctors who were quick to jump at conclusions, and whose diagnoses and treatments were dictated in part by their professional knowledge and in part by their prejudices. A liberal education is one of the best ways to avoid these real obstacles to competence in any profession, and somehow we think Doc's letter reveals some short-comings of his own in that respect.

We do not rejoice that our brethren across the hall have some troubles. We wouldn't wish them on anybody. Instead, let's join with them in a renewed attack on low professional standards, and *let's remind ourselves that no amount of money can make good relations with the public unless we work seriously at remedying the faults that stand between us and the good will and esteem of the public we serve.* (Italics added) (Journal of the American Judicature Society, August, 1953)

INCOME TAX DEDUCTION FOR POST-GRADUATE EDUCATION

Any physician who seriously considers his future in medicine must keep abreast of modern developments through post-graduate education. The health and welfare of his patients benefit by this act and indeed the whole progress of medicine—the adoption of new discoveries to the field of practical application for the public at large—hinges on the continuing education of the physician long after his medical degree and internship.

For years it has been argued that the cost of such post-graduate education is a legitimate business expense for a physician and should, therefore, be deductible for income tax purposes. The Bureau of Internal Revenue has maintained otherwise.

Recently hearings were held in Washington on this subject. The following testimony by Dr. Walter B. Martin before the Ways and Means Committee of the House of Representatives is pertinent:

"I am Dr. Walter B. Martin of Norfolk, Virginia where I am engaged in the active practice of medicine. I am President-Elect and a member of the Board of Trustees of the American Medical Association and I am appearing today as a representative of that Association relative to the deduction of college and educational expenses for income tax purposes.

"The American Medical Association has not taken any position with respect to the deduction of all college and educational expenses for income tax purposes. However, the association is vitally interested in the deduction of postgraduate educational expenses. Although the present tax laws permit such deductions for ordinary and necessary expenses in a trade or business, there is no express provision permitting professional persons to deduct the cost of securing additional education.

"In connection with postgraduate medical education, your Committee may be interested in the fact that there is a total of 784 postgraduate courses available at this time. Of this number 418 are offered on a full-time basis and 366 on a part-time schedule. These courses, which are available in 37 states, the District of Columbia and Puerto Rico, cover 34 major areas in the field of clinical medicine and 9 basic science subjects.

"A total of 134 agencies offer postgraduate medical training including 43 medical schools, 35 special medical societies, 18 hospitals, 12 academies of general practice, 11 state medical societies, 6 graduate schools of medicine and 3 agencies representing boards of health, schools of public health and government departments respectively.

"These courses are designed to be of assistance to physicians in general practice as well as to specialize in increasing their medical proficiency as well as to prepare them for specialty board certificates.

"For a considerable number of years the House of Delegates and the Board of Trustees of the Association have expressed concern over a ruling by the Commissioner of Internal Revenue holding that expenses incurred by a physician in pursuing postgraduate medical education are personal in nature and therefore, not deductible for federal income tax purposes.

It has been extremely difficult to understand the validity of such a ruling because of the fact that physicians have been permitted to deduct the costs of attending medical meetings, of subscriptions to scientific publications and dues paid to medical societies.

"Some time ago the Board of Trustees authorized the employment of a special tax counsel to pursue this matter on behalf of the Association. In an unsuccessful effort to obtain a new ruling from the Bureau of Internal Revenue, it was learned that there was pending before the United States Tax Court a case in which a lawyer had been denied the right to deduct expenses incurred by him in attending postgraduate courses on taxes. In view of the fact that the case involved was quite similar to the one in which the medical profession was interested, the American Medical Association filed a brief as amicus curiae. The tax courth held against the taxpayer and an appeal was made to the United States Court of Appeals. On April 14 the United States Court of Appeals reversed the decision of the United States Tax Court holding, in effect, that expenses incurred by the attorney in taking a postgraduate course were deductible for income tax purposes.

"While it is the belief of the American Medical Association that this decision probably applies to the practicing physician who attends postgraduate courses which are similarly designed to refresh his medical knowledge and to keep him informed regarding recent medical developments, it is by no means clear that the Court's decision covers attendance at postgraduate courses which are designed to advance the physician into a new area of his profession. For example, there is considerable doubt whether a general practitioner may deduct his expenses in attending a postgraduate course in order to specialize in surgery.

"Also it is not clear just how far the Bureau of Internal Revenue or the courts will follow this decision. If it is interpreted liberally, all business and professional men will be entitled to deduct expenses incurred in attending refresher courses providing that there is a demonstrable tie-in with their official duties. It appears more likely, however, from the wording of the decision, that a deduction would be disallowed in cases in which the taxpayer fails to show that he was bound, either contractually or morally, to keep abreast of changes in his particular field, and that attendance at an institute or refresher course was the proper way to do it.

"In view of these areas of doubt, it is the belief of the American Medical Association that the issue should be settled by new legislation rather than be left to administrative interpretation or judicial decision. We would strongly urge, therefore, that your committee give favorable consideration to an amendment to the existing law authorizing the deduction of postgraduate educational expenses for income tax purposes." (New York Medicine, August 5, 1953)

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